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FIRST LINES
OF THE
PRACTICE OF PHYSIC.

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WITH PRACTICAL AND EXPLANATORY
NOTES,

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IN TWO VOLUMES.

VOL. II.

NEW-YORK:

PRINTED BY L. NICHOLS,
FOR E. DUYCKINCK, BOOKSELLER & STATIONER,

NO. 110 PEARL-STREET.

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1806.

ANNEX

Med., Clin.

1871-72

REPORT OF THE

COMMISSIONER OF THE

LAND OFFICE

IN RESPONSE TO A RESOLUTION

PASSED BY THE SENATE

1871

BY THE SENATE

OF THE STATE OF NEW YORK

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FIRST LINES

OF THE

PRACTICE OF PHYSIC.

BOOK IV.

CHAPTER VI.

OF THE MENORRHAGIA, OR THE IMMODE- RATE FLOW OF THE MENSES.

965.] **B**LOOD discharged from the vagina may proceed from different sources in the internal parts: but I here mean, to treat of those discharges only, in which the blood may be presumed to flow from the same sources that the menses in their natural state proceed from; and which discharges alone, are those properly comprehended under the present title. The title of *Metrorrhagia*, or *hæmorrhagia uteri*, might comprehend a great deal more.

966.] The menorrhagia may be considered as of two kinds; either as it happens to pregnant and lying-in women, or as it happens to women neither pregnant nor having recently born children. The first kind, as connected with the circumstances of pregnancy and child-bearing, (which are not to be treated of in the present course) I am not to consider here, but shall confine myself to the second kind of menorrhagia only.

967.] The flow of the menses is considered as immoderate, when it recurs more frequently,* when it continues longer, or when, during the ordinary continuance,† it is more abundant‡ than is usual with the same person at other times.

968.] As the most part of women are liable to some inequality with respect to the period, the duration, and the

* The usual period is from twenty-seven to thirty days.

† The time of its continuance is very various in different people; it seldom continues longer than eight days or shorter than two. In general, women of a lax and delicate constitution have a more copious and a longer continued discharge than robust people.

‡ It is extremely difficult to ascertain precisely what quantity is usually discharged; but the women themselves can generally inform the physician with sufficient exactness for regulating the practice whether the discharge be immoderate.

quantity of their menses ; so it is not every inequality in these respects that is to be considered as a disease ; but only those deviations, which are excessive in degree, which are permanent, and which induce a manifest state of debility.

969.] The circumstances (967. 968.) are those which chiefly constitute the menorrhagia : but it is proper to observe, that although I allow the frequency, duration, and quantity of the menses to be judged of by what is usual with the same individual at other times ; yet there is, in these particulars, so much uniformity observable in the whole of the sex, that in any individual in whom there occurs a considerable deviation from the common measure, such a deviation if constantly recurring, may be considered as at least approaching to a morbid state, and as requiring most of the precautions which I shall hereafter mention as necessary to be attended to by those who are actually in such a state.

970.] However we may determine with respect to the circumstances (967. 968.) it must still be allowed, that the immoderate flow of the menses is especially to be determined by those symptoms affecting other functions of the body, which accompany and follow the discharge.

When a larger flow than usual of the menses has been preceded by headach, giddiness, or despnœa, and has been ushered in by a cold stage, and is attended with much pain of the back and loins, with a frequent pulse, heat, and thirst, it may then be considered as preternaturally large.

971.] When, in consequence of the circumstances (967—970.) and the repetition of these, the face becomes pale ; the pulse grows weak : an unusual debility is felt in exercise ; the breathing is hurried by moderate exercise ; when, also, the back becomes pained from any continuance in an erect posture ; when the extremities become frequently cold ; and when in the evening the feet appear affected with œdematous swelling ; we may from these symptoms certainly conclude, that the flow of the menses has been immoderate, and has already induced a dangerous state of debility.

972.] The debility thus induced does often discover itself also by affections of the stomach, as anorexia and other symptoms of dyspepsia ; by a palpitation of the heart, and frequent faintings ; by a weakness of mind liable to strong emotions from slight causes, especially when suddenly presented.

973.] That flow of the menses, which is attended with

barrenness in married women, may be generally considered as immoderate and morbid.

974.] Generally, also, that flow of the menses may be considered as immoderate, which is preceded and followed by a leucorrhœa.

975.] I treat of menorrhagia here as an active hemorrhagy, because I consider menstruation, in its natural state, to be always of that kind; and although there should be cases of menorrhagia which might be considered as purely passive, it appears to me that they cannot be so properly treated of in any other place.

976. The menorrhagia (967. *et seq.*) has for its proximate cause, either the hemorrhagic effort of the uterine vessels preternaturally increased, or a preternatural laxity of the extremities of the uterine arteries, the hemorrhagic effort remaining as in the natural state.

977.] The remote causes of the menorrhagia may be, *1st*, Those which increase the plethoric state of the uterine vessels; such as a full and nourishing diet, much strong liquor, and frequent intoxication. *2dly*. Those which determine the blood more copiously and forcibly into the uterine vessels; as violent strainings of the whole body; violent shocks of the whole body from falls; violent strokes or contusions on the lower belly; violent exercise, particularly in dancing; and violent passions of the mind. *3dly*, Those which particularly irritate the vessels of the uterus; as excess in venery; the exercise of venery in the time of menstruation; a costive habit, giving occasion to violent straining at stool; and cold applied to the feet.* *4thly*, Those who have forcibly overstrained the extremities of the uterine vessels; as frequent abortions; frequent child-bearing without nursing;† and difficult tedious labors, Or, *lastly*, Those which induce a general laxity; as living much in warm chambers, and drinking much of warm enervating liquors, such as tea and coffee.

* It is difficult to account for this cause of menorrhagia: It may perhaps be owing to the circulation through the lower extremities being obstructed or impeded, and consequently a greater flow of blood to the uterus. The fact, however, is certain; for experience sufficiently evinces that menorrhagia frequently follows an imprudent exposure of the feet to cold, especially damp cold. Sitting in wet shoes, or in a damp cold room with a stone floor, ought to be carefully avoided by ladies of a delicate constitution.

† By nursing, the fluids are determined to the breast, and in a peculiar manner derived from the uterus. This part of the economy of nature physiologists have not yet sufficiently explained, but the fact is well ascertained. Nursing is not only useful in preventing menorrhagia, but, as it derives the fluids from the uterus, it prevents also frequent child-bearing; and consequently, which is the greatest advantage of all others, time is allowed to the uterus for regaining its former tone and strength: The subsequent child births are also rendered more easy than they would otherwise be, and the children more healthy. It would be improper to enumerate all the advantages of nursing in this place, as I shall reserve the consideration of them for a future publication.

978.] The effects of the menorrhagia are pointed out in 971, 972. where I have mentioned the several symptoms accompanying the disease; and from these the consequences to be apprehended will also readily appear.

979.] The treatment and cure of the menorrhagia must be different, according to the different causes of the disease.

In all cases, the first attention ought to be given to avoiding the remote causes, whenever that can be done; and by that means the disease may be often entirely avoided.

When the remote causes cannot be avoided, or when the avoiding them has been neglected, and therefore a copious menstruation has come on, it should be moderated as much as possible, by abstaining from all exercise, either at the coming on, or during the continuance of the menstruation; by avoiding even an erect posture as much as possible; by shunning external heat, and therefore warm chambers and soft beds; by using a light and cool diet; by taking cold drink, at least as far as former habits will allow: by avoiding venery; by obviating costiveness, or removing it by laxatives that give little stimulus.*

The sex are commonly negligent, either in avoiding the remote causes, or in moderating the first beginnings of this disease. It is by such neglect that it so frequently becomes violent, and of difficult cure; and the frequent repetition of a copious menstruation, may be considered as a cause of great laxity in the extreme vessels of the uterus.

980.] When the coming on of the menstruation has been preceded by some disorder in other parts of the body, and is accompanied with pains of the back, resembling parturient pains, together with febrile symptoms, and when at the same time the flow seems to be copious, then a bleeding at the arm may be proper, but it is not often necessary; and it will in most cases be sufficient to employ, with great attention and diligence, those means for moderat-

* The laxatives that give little stimulus are manna, oil, tamarinds, cassia, and such mild substances. Aloetic, and other drastic purges, must be carefully avoided. Rhubarb, in moderate doses, is only admissible in cases where there is an evident atony of the stomach or intestines; and in these cases it ought to be given in substance, or in a watery infusion. The spirituous and vinous tinctures of it are absolutely inadmissible in menorrhagia.

A table spoonful of the following linctus, taken occasionally, will sufficiently obviate costiveness, without giving much stimulus:

R. Mann. opt. ʒij.
Ol. ricini ʒi.
Syr. rosar. solut. ʒi.
Crem. tartar. ʒss.
M. f. Linct.

ing the discharge which have been mentioned in the last paragraph.

981.] When the immoderate flow of the menses shall seem to be owing to a laxity of the vessels of the uterus, as may be concluded from the general debility and laxity of the person's habit; from the remote causes that have occasioned the disease (977.) from the absence of the symptoms which denote increased action in the vessels of the uterus (970.) from the frequent recurrence of the disease, and particularly from this, that in the intervals of menstruation the person is liable to a leucorrhœa; then in such case the disease is to be treated, not only by employing all the means mentioned in 979. for moderating the hemorrhagy, but also by avoiding all irritation, every irritation having the greater effect in proportion as the vessels have been more lax and yielding. If, in such a case of laxity, it shall appear that some degree of irritation concurs, opiates may be employed to moderate the discharge; but in using these, much caution is requisite.*

If, notwithstanding these measures having been taken, the discharge shall prove very large, astringents,† both external and internal, may be employed. In such cases, may small doses of emetics be of service?

982.] When the menorrhagy depends on the laxity of the uterine vessels, it will be proper, in the intervals of menstruation, to employ tonic remedies; as cold bathing and chalybeates.‡ The exercises of gestation, also, may be

* Opiates used too liberally generally increase the discharge, in consequence of their very great power in relaxing the whole system.

† The astringents for internal use, are alum, catechu, tincture of roses, &c. Ten grains of alum, and as much catechu may be given in a powder, every two or three hours, with three or four spoonfuls of tincture of roses to wash it down. The bark is sometimes of use in these cases, especially when joined with alum. The external applications are, cold cloths soaked in vinegar and water applied to the lower region of the abdomen, or to the pudenda; or a strong decoction of oak bark, with an ounce of alum dissolved in every pint of it, may be applied cold to the same parts.

‡ The following form is very convenient:

R. Rubigin. ferri ʒij.
Cort. Peruv. ʒi.
Syr. simpl. q. s.
M. f. Elect.

The dose of this electuary is to be varied according to the constitution; the size of a nutmeg twice a day is usually given.

The best forms of chalybeates, in these cases, are the mineral waters which contain iron dissolved by fixed air. Chalybeate waters should not, in this disease, be drank in such large quantities as to pass off by stool. A gill taken every three or four hours throughout the day, with a spoonful of Port wine, is more efficacious than a pint or even a quart, taken at once in the morning. The dose, however, of these waters, varies according to the strength of the particular water we use. Along with the chalybeate water, a scruple or half a drachm of Peruvian bark may be given twice a-day.

The following form is very agreeable, and is at the same time singularly efficacious:

R. Extract. cort. Peruv. ʒi.
Extract. Campechens.

very useful, both for strengthening the whole system, and for taking off the determination of the blood to the internal parts.

983.] The remedies mentioned in these two last paragraphs, may be employed in all cases of menorrhagia, from whatever cause it may have proceeded, if the disease shall have already induced a considerable degree of debility in the body.

CHAPTER VII.

OF THE LEUCORRHŒA, FLUOR ALBUS, OR WHITES.

984.] **E**VERY serous or puriform discharge from the vagina, may be, and has been comprehended under one or other of the appellations I have prefixed to this chapter. Such discharges, however may be various; and may proceed from various sources, not yet well ascertained; but I confine myself here to treat of that discharge alone which may be presumed to proceed from the same vessels, which, in their natural state, pour out the menses.

985.] I conclude a discharge from the vagina to be of this kind; * 1. From its happening to women who are subject to an immoderate flow of the menses, and liable to this from causes weakening the vessels of the uterus. 2. From its appearing chiefly, and often only, a little before, as well as immediately after, the flow of the menses. 3. From the flow of the menses being diminished, in proportion as the leucorrhœa is increased. 4. From the leucorrhœa continuing after the menses have entirely ceased, and with some appearance of its observing a periodical recurrence. 5. From the leucorrhœa being accompanied with the effects of the menorrhagia (971—972.) 6. From the discharge having been neither preceded by, nor accompanied with, symptoms of any topical affections of the uterus. 7. From the leucorrhœa not having appeared soon after communication with a person who might be suspected of communi-

Extract. Glychrrh. aa ʒss.

Mucilag. gum. Arab. q. s.

M. f. Elect.

The dose is half a drachm or two scruples twice a-day.

* The young practitioner ought to pay great attention to the diagnostics of the leucorrhœa delivered in this article.

cating infection, and from the first appearance of the disease not being accompanied with any inflammatory affection of the pudenda.*

986.] The appearance of the matter discharged in the leucorrhœa, is very various with respect to consistence and color ; but from these appearances, it is not always possible to determine concerning its nature, or the particular source from whence it proceeds.

987.] The leucorrhœa, of which I am to treat, as ascertained by the several circumstances (985.) seems to proceed from the same causes as that species of menorrhagia which I suppose to arise from the laxity of the extreme vessels of the uterus. It accordingly often follows or accompanies such a menorrhagia ; ; but though the leucorrhœa depends chiefly upon the laxity mentioned, it may have proceeded from irritations inducing that laxity, and seems to be always increased by any irritations applied to the uterus.

988.] Some authors have alleged, that a variety of circumstances in other parts of the body may have a share in bringing on and in continuing this affection of the uterus now under consideration ; but I cannot discover the reality of those causes ; and it seems to me, that this leucorrhœa, excepting in so far as it depends upon a general debility of the system, is always primarily an affection of the uterus ; and the affections of other parts of the body which may happen to accompany it, are for the most part to be considered as effects, rather than as causes.

989.] The effects of the leucorrhœa are much the same with those of menorrhagia ; inducing a general debility, and in particular, a debility in the functions of the stomach. If, however, the leucorrhœa be moderate, and be not accompanied with any considerable degree of menorrhagia, it may often continue long without inducing any great degree of debility, and it is only when the discharge has been very copious as well as constant, that its effects in that way are very remarkable.

990.] But, even when its effects upon the whole body are not very considerable, it may still be supposed to weaken the

* Nothing is more frequent with ignorant practitioners than to mistake a gonorrhœa for a leucorrhœa. Women in general give the name of whites to a gonorrhœa, and therefore the unwary practitioner may the more easily be misled. The distinguishing characteristic of gonorrhœa is, as the Author says, an inflammatory affection of the pudenda ; but, as few women will suffer an infection of the parts, we must pay some attention to the concomitant symptoms. The running in a gonorrhœa is constant, and only in small quantities ; in a leucorrhœa the discharge is inconstant, and in large quantities. The other distinguishing marks of a gonorrhœa are, smarting in making water, itching of the pudenda, increased inclination for venery, a swelling of the labia and of the glands about the groin. Some authors mention the color of the discharged matter as a distinguishing mark ; this, however, is inconstant.

genital system ; and it seems sufficiently probable that this discharge may often have a share in occasioning barrenness.

991.] The matter discharged in the leucorrhœa, is at first generally mild ; but after some continuance of the disease, it sometimes becomes acrid ;* and by irritating, or perhaps eroding, the surfaces over which it passes, induces various painful disorders.

992.] As I have supposed that the leucorrhœa proceeds from the same causes as that species of menorrhagia which is chiefly owing to a laxity of the uterine vessels, it must be treated, and the cure attempted, by the same means as delivered in 981, for the cure of menorrhagia, and with less reserve in respect to the use of astringents.†

993.] As the leucorrhœa generally depends upon a great loss of tone in the vessels of the uterus, the disease has been relieved, and sometimes cured by certain stimulant medicines, which are commonly determined to the urinary passages, and from the vicinity of these are often communicated to the uterus. Such, for example, are cantharides, turpentine, and other balsams of a similar nature.‡

* The young practitioner must not conclude too hastily that an ulcer exists in the uterus when the matter discharged is acrid. Practice has afforded many instances where the matter has excoriated the pudenda, and yet no ulcer existed.

† The electuary mentioned at the end of the last note on article 982. has been found efficacious in some cases of leucorrhœa. Its dose may be increased to a drachm thrice a-day, either swallowed as a bolus, or dissolved in an ounce of pure water, and half an ounce of simple cinnamon water.

The chalybeate waters are useful in this, as well as in the former disease ; and they may be used in the manner above mentioned.

Practitioners recommend, in these cases, a nutritive but not a heating diet, as mucilaginous broths made with rice, especially veal-broth, jellies of all kinds, except those that are high-seasoned. Port wine must be prescribed in a moderate quantity, according to the habits of the patient.

‡ The practice here recommended is not without danger, and must not be followed except with great caution and circumspection. When the other means fail producing relief, we may then have recourse to these balsamics, or join them to the tonic astringents, as,

Rx. Gum. oliban.

Terebinth. venet.

Alum.

Terr. Japonic. aa. ʒi.

Sal. martis ʒss.

M. f. massa. in pilulas æquales No. 60. dividend.

Two or three of these pills may be given twice a day or oftener.

Some practitioners have strongly recommended the following emulsion.

Rx. Balsam. copaivi. ʒi,

Vitel. ovi No. 1.

Tere in mortar. marmor. et adde gradatim,

Aq. font. ʒvii.

Syr. Simpl. ʒi.

M. f. Emuls.

The dose of this emulsion is two or three spoonfuls three or four times a day.

CHAPTER VIII.

OF THE AMENORRHŒA, OR INTERRUPTION
OF THE MENSTRUAL FLUX.

994.] **W**HATEVER, in a system of methodical nosology, may be the fittest place for the amenorrhœa, it cannot be improper to treat of it here as an object of practice, immediately after having considered the menorrhagia.

995.] The interruption of the menstrual flux is to be considered as of two different kinds ; the one being when the menses do not begin to flow at that period of life at which they usually appear ; and the other being that when, after they have repeatedly taken place for some time, they do, from other causes than conception, cease to return at their usual periods : The former of these cases is named the *retention*, and the latter the *suppression*, of the menses.

996.] As the flowing of the menses depends upon the force of the uterine arteries impelling the blood into their extremities, and opening these so as to pour out red blood ; so the interruption of the menstrual flux must depend, either upon the want of due force in the action of the uterine arteries, or upon some preternatural resistance in their extremities. The former I suppose to be the most usual cause of retention, the latter the most common cause of suppression ; and of each of these I shall now treat more particularly.

997.] The retention of the menses, the *emansio mensium* of Latin writers, is not to be considered as a disease merely from the menses not flowing at that period which is usual with most other women. This period is so different in different women, that no time can be precisely assigned as proper to the sex in general.—In this climate, the menses usually appear about the age of fourteen, but in many they appear more early, and in many not till the sixteenth year : in which last case it is often without any disorder being thereby occasioned. It is not therefore from the age of the person that the retention is to be considered as a disease ; and it is only to be considered as such, when about the time the menses usually appear, some disorders arise in other parts of the body which may be imputed to their retention ;

being such as, when arising at this period, are known from experience to be removed by the flowing of the menses.

998.] These disorders are, a sluggishness, and frequent sense of lassitude and debility, with various symptoms of despepsia; and sometimes with a preternatural appetite.* At the same time the face loses its vivid color, becomes pale, and sometimes of a yellowish hue; the whole body becomes pale and flaccid; and the feet, and perhaps also a great part of the body, become affected with œdematous swellings. The breathing is hurried by any quick or laborious motion of the body, and the heart is liable to palpitation and syncope.—A headach sometimes occurs; but more certainly pains of the back, loins, and haunches.†

999.] These symptoms, when occurring in a high degree, constitute the *chlorosis* of authors, hardly ever appearing separate from the retention of the menses; and, attending to these symptoms, the cause of this retention may, I think, be perceived.

These symptoms manifestly show a considerable laxity and flaccidity of the whole system; and therefore give reason to conclude, that the retention of the menses accompanying them, is owing to a weaker action of the vessels of the uterus; which therefore do not impel the blood into their extremities with a force sufficient to open these, and pour out blood by them.

1000.] How it happens that at a certain period of life a flaccidity of the system arises in young women not originally affected with any such weakness or laxity, and of which but a little time before, they had given no indication, may be difficult to explain; but I would attempt it in this way.

As a certain state of the ovaria in females, prepares and disposes them to the exercise of venery, about the very period at which the menses first appear, it is to be presumed, that the state of the ovaria and that of the uterine vessels are in some measure connected together; and as generally symptoms of a change in the state of the former appear before those of the latter, it may be inferred that the state of the ovaria has a great share in exciting the action of the uterine vessels and producing the menstrual flux. But ana-

* This is a very extraordinary symptom, which has not hitherto been explained. It sometimes accompanies every cessation of the uterine discharge, but frequently appears in the most violent degree, in pregnancy. In young women, the appetite for chalk, lime-rubbish, charcoal, and various absorbents, is the most prevalent. Stahl, and his followers, made great use of this circumstance in supporting their favorite opinion of the *vis medicatrix naturæ*.

† These pains are not properly symptoms of the disease, but prognostics of the efforts nature makes to remove the disease: They are symptoms of the *vis medicatrix*.

logous to what happens in the male sex, it may be presumed, that in females a certain state of the genitals is necessary to give tone and tension to the whole system ; and therefore that, if the stimulus arising from the genitals be wanting, the whole system may fall into a torpid and flaccid state, and from thence the chlorosis and retention of the menses may arise.

1001.] It appears to me, therefore, that the retention of the menses is to be referred to a certain state or affection of the ovaria : but what is precisely the nature of this affection, or what are the causes of it, I will not pretend to explain ; nor can I explain in what manner that primary cause of retention is to be removed. In this, therefore, as in many other cases, where we cannot assign the proximate cause of diseases, our indications of cure must be formed for obviating and removing the morbid effects or symptoms which appear.

1002.] The effects, as has been said in 999, consist in a general flaccidity of the system, and consequently in a weaker action of the vessels of the uterus ; so that this debility may be considered as the more immediate cause of the retention. This therefore, is to be cured by restoring the tone of the system in general, and by exciting the action of the uterine vessels in particular.

1003.] The tone of the system in general is to be restored by exercise, and in the beginning of the disease, by cold bathing. At the same time, tonic medicines* may be employed ; and of these the chalybeates have been chiefly recommended.

1004.] The action of the vessels of the uterus may be excited :

1st, By determining the blood into them more copiously ; which is to be done by determining the blood into the descending aorta, by purging, by the exercise of walking,† by friction, and by warm bathing of the lower extremities. It is also probable that the blood may be determined more copiously into the hypogastric arteries which go to the uterus, by a compression of the iliaes ; but the trials of this kind hitherto made have seldom succeeded.

* Forms of the tonic medicines have been given in some of the preceding notes. The electuary in the note on article 982. is frequently used with success. In this case, we must not use astringents, but tonics, and consequently only such tonics as are not astringents, at least in a high degree. The simple bitter tonics frequently answer where the symptoms are not severe. The *Infusum gentianæ compositum* of the new London Pharmacopœia is a good formula. The dose of it is two ounces twice a-day, or oftener if the stomach can bear it.

Chalybeates are absolutely necessary if the disease withstands the use of bitters ; they may be given in any of the forms mentioned in the preceding notes.

† Dancing is also a proper exercise in this disease.

1005.] 2dly, The action of the uterine vessels may be excited by stimulants applied to them. Thus those purgatives which particularly stimulate the intestinum rectum,* may also prove stimulant to the uterine vessels connected with those of the rectum. The exercise of venery certainly proves a stimulus to the vessels of the uterus; and therefore may be useful when, with propriety, it can be employed. The various medicines recommended as stimulants of the uterine vessels, under the title of Emenagogues, have never appeared to me to be effectual; and I cannot perceive that any of them are possessed of a specific power in this respect. Mercury, as an universal stimulant, may act upon the uterus, but cannot be very safely employed in chlorotic persons. One of the most powerful means of exciting the action of the vessels in every part of the system is, the electrical shock; and it has often been employed with success for exciting the vessels of the uterus.

1006.] The remedies (1002—1005.) now mentioned, are those adapted to the *retention* of the menses; and I am next to consider the case of *suppression*. In entering upon this, I must observe, that every interruption of the flux, after it has once taken place, is not to be considered as a case of suppression. For the flux, upon its first appearance, is not always immediately established in its regular course; and therefore, if an interruption happen soon after the first appearance, or even in the course of the first, or perhaps second year after, it may often be considered as a case of retention, especially when the disease appears with the symptoms peculiar to that state.

* These stimulant purges are in general the drastic resins, as Scammony, Aloes, &c. Various formulæ of them have been recommended in these cases; the *Pilulæ Rufi* is commonly used with good effect. It may be given in the quantity of half a drachm, or, in strong constitutions, two scruples. It ought not to be repeated above twice a week; and, in the intermediate days, we may employ the tonic medicines above mentioned.

The *Pilulæ ephrasticæ* of the Edinburgh Pharmacopœia is another very effectual medicine in these cases. Its dose is half a drachm twice a week, if we intend to purge briskly; but, by giving a smaller quantity, as ten, twelve, or fifteen grains once a-day, a constant stimulus is preserved, which some practitioners prefer.

The following pills are also much recommended:

Rx. Pil. Gummos.

Aloes Socotorin. aa ʒii.

Vin. Aloet. q. s.

M. f. Massa in pilulas. 48. dividend.

The dose is 3 or 4 pills at bed time.

The tinctura sacra is also frequently used as a brisk purge in these cases; its dose for this purpose must not be less than an ounce and a half in most habits; but a strong constitution will require two ounces or more.

Other stimulants than purges have been employed in amenorrhœa, as the Tinctura sabina composita of the new London Pharmacopœia; its dose is thirty or forty drops, in any suitable vehicle. The Tinctura myrrhæ of the same Pharmacopœia, in doses of twenty or thirty drops, is often recommended on the authority of Boerhaave.

1007.] Those which may be properly considered as cases of suppression, are such as occur after the flux has been for some time established in its regular course, and in which the interruption cannot be referred to the causes of retention (1001, 1002.) but must be imputed to some resistance in the extremities of the vessels of the uterus. Accordingly, we often find the suppression induced by cold, fear, and other causes which may produce a constriction of these extreme vessels. Some physicians have supposed an obstructing lentor of the fluids to occasion the resistance now mentioned: but this is purely hypothetical, without any proper evidence of the fact; and it is besides, from other considerations, improbable.

1008.] There are indeed some cases of suppression that seem to depend upon a general debility of the system, and consequently of the vessels of the uterus. But in such cases, the suppression always appears as symptomatic of other affections, and is therefore not to be considered here.

1009.] The idiopathic cases of suppression (1007.) seldom continue long without being attended with various symptoms or disorders in different parts of the body; very commonly arising from the blood which should have passed by the uterus, being determined more copiously into other parts, and very often with such force as to produce hemorrhagies in these. Hence hemorrhagies from the nose, lungs, stomach, and other parts, have appeared in consequence of suppressed menses. Beside these, there are commonly hysteric and dyspeptic symptoms produced by the same cause; and frequently colic pains, with a bound belly.

1010.] In the idiopathic cases of suppression, (1007.) the indication of cure is to remove the constriction affecting the extreme vessels of the uterus; and for this purpose the chief remedy is warm bathing applied to the region of the uterus. This, however, is not always effectual, and I do not know of any other remedy adapted to the indication. Besides this, we have perhaps no other means of removing the constriction in fault, but that of increasing the action and force of the vessels of the uterus, so as thereby to overcome the resistance or constriction of the extremities. This therefore is to be attempted by the same remedies in the case of suppression, as those prescribed in the cases of retention (1003. 1005.) The tonics, however, and cold-bathing (1003.) seem to be less properly adapted to the

cases of suppression, and have appeared to me of ambiguous effect.*

1011.] It commonly happens in the cases of suppression, that though the menses do not flow at their usual periods, there are often at those periods some marks of an effort having a tendency to produce the discharge. It is therefore at those times especially when the efforts of the system are concurring, that we ought to employ the remedies for curing a suppression; and it is commonly fruitless to employ them at other times, unless they be such† as require some continuance in their use to produce their effects.

1012.] Nearly similar to the cases of suppression, are those cases in which the menses flow after long intervals, and in lesser quantity than usual; and when these cases are attended with the disorders in the system (1009.) they are to be cured by the same remedies as the cases of entire suppression.

1013.] It may be proper in this place to take notice of the desmenorrhea, or cases of menstruation in which the menses seem to flow with difficulty, and are accompanied with much pain in the back, loins, and lower belly. We impute this disorder partly to some weaker action of the vessels of the uterus, and partly, perhaps more especially, to a spasm of its extreme vessels. We have commonly found the disease relieved by employing some of the remedies of suppression immediately before the approach of the period, and at the same time employing opiates.

CHAPTER IX.

OF SYMPTOMATIC HEMORRHAGIES.

1014.] I HAVE thought it very improper, in this work, to treat of those morbid affections that are almost always symptomatic of other more primary diseases; and this for several reasons, particularly because it introduces a great deal of confusion in directing practice, and leads physicians to employ palliative measures only. I

* The Emenagogues enumerated in the note on article 1005. are more efficacious in these cases than the tonics and chalybeates mentioned in the note on article 1003. for this reason, that the suppression of the menses depends more on the constriction, than on a laxity of the extreme vessels. Some cases, indeed, occur, where a lax habit is the cause of suppression, but they are rare: The physician ought to be attentive in discriminating such cases, because a liberal use of forcing emenagogues is always hurtful in them; they can only be relieved by tonics, and especially by chalybeates.

† Viz. tonics or alterants.

shall here, however, deviate a little from my general plan, to make some reflections upon symptomatic hemorrhagies.

1015.] The hemorrhagies of this kind that especially deserve our notice, are the Hematemesis, or Vomiting of Blood; and the Hematuria, or the Voiding of Blood from the urinary passage. Upon these I am here to make some remarks; because, though they are very generally symptomatic, it is possible they may be sometimes primary and idiopathic affections; and because they have been treated of as primary diseases in almost every system of the practice of physic.

SECTION I.

Of the Hematemesis, or Vomiting of Blood.

1016.] I HAVE said above in 944, in what manner blood thrown out from the mouth may be known to proceed from the stomach, and not from the lungs; but it may be proper here to say more particularly, that this may be certainly known, when the blood is brought up manifestly by vomiting without any coughing; when this vomiting has been preceded by some sense of weight, anxiety, and pain, in the region of the stomach; when the blood brought up is of a black and grumous appearance, and when it is manifestly mixed with other contents of the stomach; we can seldom have any doubt of the source from whence the blood proceeds, and therefore of the existence of the disease we treat of.

1017.] We must allow it to be possible that a plethoric state of the body from general causes may be accompanied with causes of a peculiar determination and afflux of blood to the stomach, so as to occasion an hemorrhagy there, and thence a vomiting of blood; and in such a case this appearance might be considered as a primary disease. But the history of diseases in the records of physic, afford little foundation for such a supposition; and on the contrary, the whole of the instances of a vomiting of blood which have been recorded, are pretty manifestly symptomatic of a more primary affection.

Of such symptomatic vomitings of blood, the chief instances are the following.

1018.] One of the most frequent is that which appears

in consequence of a suppression of an evacuation of blood which had been for some time before established in another part of the body, particularly that of the menstrual flux in women.

1019.] There are instances of a vomiting of blood happening from the *retention* of the menses : but such instances are very uncommon ; as retention of the menses rarely happens in consequence of, or even with a plethoric state of the body ; and as rarely does it produce that, or the hemorrhagy in question.

There are instances of a vomiting of blood happening to pregnant women ; that might therefore also be imputed to the suppression of the menses, which happens to women in that state. There have indeed been more instances of this than of the former case ; but the latter are still very rare : for although the blood which used to flow monthly before impregnation, is, upon this taking place, retained, it is commonly so entirely employed in dilating the uterine vessels, and in the growth of the fœtus that it is seldom found to produce a plethoric state of the body, requiring a vicarious outlet.

The vomiting of blood, therefore, that is vicarious of the menstrual flux, is that which commonly and almost only happens upon a suppression of that flux, after it had been for some time established.

1020.] When such a suppression happens, it may be supposed to operate by inducing a plethoric state of the whole body, and thereby occasioning hemorrhagy from other parts of it ; and hemorrhagies from many different parts of the body have been observed by physicians as occurring in consequence of the suppression we speak of. It is however the great variety of such hemorrhagies, that leads me to think, that with the plethoric state of the whole body there must be always some peculiar circumstances in the part from which the blood flows, that determines its afflux to that particular, often singularly odd, part ; and therefore, that such hemorrhagies may from these circumstances occur without any considerable plethora at the same time prevailing in the whole system.

1021.] It is to be observed, that if we are to expect an hemorrhagy in consequence of a suppression of the menses inducing a plethoric state of the system, we should expect especially an hemoptysis, or hemorrhagy from the lungs, as a plethora might be expected to show its effects especi-

ally there; and accordingly, upon occasion of suppressed menses, that hemorrhagy occurs more frequently than any other: but even this, when it does happen, neither in its circumstances nor its consequences, leads us to suppose, that at the same time any considerable or dangerous plethora prevails in the body.

1022.] These considerations (in 1020. 1021.) will, I apprehend, apply to our present subject; and I would therefore alledge, that a hematemesiſ may perhaps depend upon particular circumstances of the stomach determining an afflux of blood to that organ, and may therefore occur without any considerable or dangerous plethora prevailing in the system. What are the circumstances of the stomach, which upon the occasion mentioned, may determine an afflux of blood to it, I cannot certainly or clearly explain; but presume that it depends upon the connection and consent which we know to subsist between the uterus and the whole of the alimentary canal, and especially that principal part of it, the stomach.

1023.] From these reflections, we may, I think draw the following conclusions:

I. That the hematemesiſ we speak of is hardly ever a dangerous disease.

II. That it will hardly ever require the remedies suited to the cure of active hemorrhagy; and at least that it will require these only in those unusual cases in which there appear strong marks of a general plethora, and in which the vomiting of blood appears to be considerably active, very profuse, and frequently recurring.

III. That a vomiting of blood from suppressed menses, ought seldom to prevent the use of these remedies of amenorrhœa, which might be improper in the case of an active idiopathic hemorrhagy.

1024.] Another case of symptomatic hematemesiſ quite analogous to that already mentioned, is the hematemesiſ following, and seemingly depending upon, the suppression of an hemorrhoidal flux, which had been established and frequent for some time before.

This may perhaps be explained by a general plethoric state induced by such a suppression; and indeed some degree of a plethoric state must in such a case be supposed to take place; but that supposition alone will not explain the whole of the case; for a general plethora would lead us to expect an hæmoptysiſ (1021.) rather than an hematemesiſ;

and there is therefore something still wanting, as in the former case, to explain the particular determination to the stomach.

Whether such an explanation can be got from the connexion between the different parts of the sanguiferous vessels of the alimentary canal, or from the connexion of the whole of these vessels with the vena portarum, I shall not venture to determine. But in the mean time I imagine, that the explanation required is rather to be obtained from that connexion of the stomach with the hemorrhoidal affection that I have taken notice of in 945.

1025.] How we may explain the hematemesis occasioned by a suppression of the hemorrhoids, the considerations in 1020, 1021, will apply here as in the analogous case of hematemesis from suppressed menses; and will therefore allow us also to conclude here, that the disease we now treat of will seldom be dangerous, and will seldom require the same remedies that idiopathic and active hemorrhagy does.

1026.] The cases of hematemesis already mentioned, may be properly supposed to be hemorrhagies of the arterial kind; but it is probable that the stomach is also liable to hemorrhagies of the venous kind (767.)

In the records of physic there are many instances of vomiting blood, which were accompanied with a tumefied spleen, which had compressed the vas breve, and thereby prevented the free return of venous blood from the stomach. How such an interruption of the venous blood may occasion an hemorrhagy from either the extremities of the veins themselves, or from the extremities of their correspondent arteries, we have explained above in 768; and the histories of tumefied spleens compressing the vasa brevia, afford an excellent illustration and confirmation of our doctrine on that subject, and render it sufficiently probable that vomitings of blood often arise from such a cause.

1027.] It is also possible, that an obstruction of the liver resisting the free motion of the blood in the vena portarum, may sometimes interrupt the free return of the venous blood from the vessels of the stomach, and thereby occasion a vomiting of blood; but the instances of this are neither so frequent nor so clearly explained as those of the former case.

1028.] Besides these cases depending on the state of the liver or spleen, it is very probable that other hemorrhagies of the stomach are frequently of the venous kind.

The disease named by Sauvages, *Melæna*, and by other

writers commonly termed the *Morbus Niger* (771.) consisting in an evacuation either by vomiting or by stool, and sometimes in both ways, of a black and grumous blood, can hardly be otherwise occasioned, than by a venous hemorrhagy from some part of the internal surface of the alimentary canal.

It is, indeed, possible, that the bile may sometimes put on a black and viscid appearance, and give a real foundation for the appellation of an *Atra Bilis*: but it is certain, that instances of this are very rare; and it is highly probable that what gave occasion to the notion of an *atra bilis* among the ancients, was truly the appearance of blood poured into the alimentary canal in the manner I have mentioned; and which appearance, we know, the blood always puts on when it has stagnated there for any length of time. I suppose it is now generally thought, that Boerhaave's notion of such a matter existing in the mass of blood, is without any foundation; whilst, by dissections in modern times, it appears very clearly, that the *morbus niger* presenting such an appearance of blood, always depends upon the effusion and stagnation I have mentioned.

1029.] From this account of the *melæna* it will appear that vomiting of blood may arise in consequence of blood being poured out in the manner I have mentioned, either into the cavity of the stomach itself, or into the superior portions of the intestines, from whence matters often pass into the stomach.

1030.] Both in the case of the *melæna*, and in the analogous cases from affections of the spleen or liver, it will appear, that the vomitings of blood occurring must be considered as symptomatic affections, not at all to be treated as a primary active hemorrhagy, but by remedies, if any such be known, that may resolve the primary obstructions.*

* This is doubtless the most rational practice, namely, to resolve the obstruction which has occasioned the blood to be thrown or driven to the intestines. To discover this primary obstruction is, however, sometimes extremely difficult; and, even when it is discovered, it is frequently not easily resolved; in such cases, therefore, we must use the general remedies for removing the plethora, except laxatives, the operations of which, in general, derive the fluids to the intestines. Sweating is perhaps the best general evacuation for determining the fluids from the intestines; but its use ought to be preceded by bleeding; and it ought not, in these cases, to be excited by nauseating doses of emetics, as these produce the same effect as laxatives; we must therefore have recourse to the light aromatics, sage, mint, balm, wine whey, &c. Camphor and opium are also proper sudorifics in these cases. They may be given together, as in the following bolus:

Rx. Camphor, gr. vi.
Spir. vini gutt. x.
Opii pur. gr. i.

1031.] I believe I have now mentioned almost the whole of the causes producing an hematemesis; and certainly the causes mentioned, are those which most commonly give occasion to that symptom. Possibly, however there may be some other causes of it, such as that singular one mentioned by Sauvage of an aneurism of the aorta bursting into the stomach; and it is possible, that some diseases of other contiguous parts, which have become closely adhering to the stomach, may sometimes, by a rupture into the cavity of the stomach, pour blood into it, which is afterwards rejected by vomiting. It is possible also, that abscesses and ulcerations of the stomach itself, may some-

Conf. card. ʒss. vel q. s.

M. f. bolus.

Some practitioners have recommended large quantities of spermaceti in cases of hematemesis, and not without reason. It may be given in emulsions, with yolks of eggs, or in an electuary. I shall therefore add a formula of each.

R. Spermat. cet. ʒss.

Vitel. ovi q. s.

Tere in mortar. mormoreo, et adde

Aq. font. ʒvii.

Syr. simpl. ʒi.

M. f. Emuls.

The dose of this emulsion is two or three table-spoonfuls every three hours.

R. Spermat. cet. ʒi.

Conserv. rosar. ʒii.

Syr. Simp. ʒi.

M. f. Elect.

The dose of this electuary is a tea-spoonful or two every two or three hours.

If the hematemesis be violent we must have recourse to some of the styptics and astringents mentioned before in the cure of the hemorrhagy in general, as alum, catechu, kino, &c. of which I shall subjoin some formulæ.

R. Alum. ust. gr. iii.

Kino ʒss.

M. f. Pulvis.

This powder may be repeated every two hours, and three table-spoonfuls of the tincture of roses may be given to wash it down.

The electuary japonicum of the Edinburgh Pharmacopœia is well calculated for these cases; its dose is a drachm and a half or two drachms.

The extract of logwood is sometimes used in these cases with considerable success. It may either be given alone in doses of a scruple each every three hours, or joined with alum, as in the following formula:

R. Extract. lign. Campechens. ʒss.

Alum. ust. gr. iii.

M. f. pulvis.

This powder may be repeated every three hours; drinking after it three table-spoonfuls of the tincture of roses; or a tea-cupful of cold water, with twenty or thirty drops of the acidum vitæ or lemon dilution, or as much as sufficient to give an agreeable acidity.

All these styptics and astringents are apt to produce costiveness, which much be removed by emollient glysters, as laxative medicines are, for the reasons above mentioned, generally hurtful in these cases.

The young practitioner must not trust to these medicines for completely curing a hemorrhage from the intestines; they are only palliatives, and are of no other use than to check the violence of the discharge until the true cause of the disease be discovered; and the discovery of this cause must be left to the sagacity of the physician.

times pour blood into its cavity to be thrown up by vomiting.

I did not think it necessary, among the symptomatic vomitings of blood, to enumerate those from external violence, nor, what is analogous to it, that which arises from violent straining to vomit; which last, however, is much more rare than might be expected. In either of these cases the nature of the disease cannot be doubtful, and the management of it will be readily understood from what has been delivered above with respect to moderating and restraining hemorrhagy in general.

SECTION II.

Of the Hematuria, or the Voiding of Blood from the Urinary Passage.

1032.] IT is alledged, that an hematuria has occurred without any other symptom of an affection of the kidneys or urinary passages being present at the same time; and as this happened to plethoric persons, and recurred at fixed periods, such a case has been supposed to be an instance of idiopathic hematuria, and of the nature of those active hemorrhagies I have treated of before.

1033.] I cannot positively deny the existence of such a case; but must observe, that there are very few instances of such upon the records of physic; that none have ever occurred to my observation, or to that of my friends; and that the observations adduced may be fallacious, as I have frequently observed an hematuria without symptoms of other affection of the kidney or urinary passages being, for the time, present; whilst, however, fits of a nephralgia calculosa having, before, or soon after, happened, rendered it to me sufficiently probable, that the hematuria was owing to a wound made by a stone present in some part of the urinary passages.

1034.] The existence of an idiopathic hematuria is further improbable, as a general plethora is more likely to produce an hemoptysis (1021.) and as we do not well know of any circumstance which might determine more particularly to the kidneys. An idiopathic hematuria, therefore, must certainly be a rare occurrence; and instances of symptomatic affections of the same kind are very frequent.

1035.] One of the most frequent is, that hematuria which attends the nephralgia calculosa, and seems manifestly to be owing to a stone wounding the internal surface of the pelvis of the kidney or of the ureter. In such cases, the blood discharged with the urine is sometimes of a pretty florid color, but for the most part is of a dark hue: the whole of it is sometimes diffused or dissolved, and therefore entirely suspended in the urine; but if it is in any large quantity, a portion of it is deposited to the bottom of the vessel containing the voided blood and urine. On different occasions, the blood voided puts on different appearances. If the blood poured out in the kidney has happened to stagnate for some time in the ureters or bladder, it is sometimes coagulated, and the coagulated part is afterwards broken down into a grumous mass of a black or dark color, and therefore gives the same color to the urine voided; or if the quantity of broken down blood is small, it gives only a brownish urine resembling coffee. It sometimes also happens, that the blood stagnating and coagulating in the ureters, takes the form of these vessels, and is therefore voided under the appearance of a worm; and if the coagulated blood happens to have, as it may sometimes, have, the gluten separated from the red globules, these worm-like appearances have their external surface whitish, and the whole seemingly forming a tube containing a red liquor. I have sometimes observed the blood which had seemingly been coagulated in the ureter, come away in an almost dry state, resembling the half-burnt wick of a candle.*

1036.] These are the several appearances of the blood voided in the hematuria calculosa, when it proceeds especially from the kidneys or ureter; and many of the same appearances are observed when the blood proceeds only from the bladder when a stone is lodged there; but the attending symptoms will commonly point out the different seat of the disease.

In one case, when a quantity of blood from the kidney or ureter is coagulated in the bladder, and is therefore dif-

* In general, the blood is coagulated and grumous; hence the urine deposits a dark brown substance somewhat resembling coffee-grounds.

As the grumous blood is specifically heavier than the urine, it falls to the bottom of the bladder, and is consequently voided in greater quantity in the beginning than towards the end of making water, the urine that comes off first being very deep colored and muddy, but becoming, while it flows, gradually more transparent and pure, until at last it is perfectly of a natural appearance. The patient generally mentions this circumstance in describing his complaints, with this addition, that he has in the beginning some difficulty of making water, but that this difficulty decreases in proportion as the urine becomes more transparent.

scarcely thrown out from this, the pain and uneasiness on such an occasion may appear chiefly to be in the bladder, though it contains no stone; but the antecedent symptoms will commonly discover the nature of the disease.

1037.] In any of the cases of the hematuria calculosa, it will hardly be necessary to employ the remedies suited to an active hemorrhagy. It will be proper only to employ the regimen fit for moderating hemorrhagy in general, and particularly here to avoid every thing or circumstance that might irritate the kidneys or ureters. Of such cases of irritation there is none more frequent or more considerable than the presence of hardened feces in the colon; and these therefore are to be frequently removed by the frequent use of gentle laxatives.*

1038.] The hematuria calculosa† may be properly considered as a case of the hematuria violenta: and therefore I subjoin to that the other instances of hematuria from external violence; such as that from external contusion on the region of the kidney,‡ and that from the violence or long continued exercise of the muscles incumbent on the kidneys. An instance of the latter cause occurs especially in riding.§

1039.] It may also be considered as a case of the hematuria violenta, when the disease occurs in consequence of the taking in of certain acrid substances, which pass again especially by the urinary passages; and by inflaming and swelling the neck of the bladder, bring on a rupture of the over-distended blood-vessels, and give occasion to a bloody urine. The most noted instance of this is in the effect of cantharides in a certain quantity, any way introduced into the body. And possibly some other acrids may have the same effect.||

* Glysters are preferable to purgatives in these cases, because they are less stimulating; and the emollient glysters are preferable to all others, for their only intention is to soften the hardened feces. The only purgatives to be used are those of the mildest kind, as manna, oil, cassia, &c. The intention of purgatives, in these cases, is only to remove the hardened feces; and this intention can often be sufficiently answered by a proper choice of food, as broths, especially those made with barley and young animal flesh; barley gruel, with prunes boiled in it: stewed endive, lettuce, and other oleraceous dishes.

† The hematuria calculosa being symptomatic, can only be cured by removing the cause; it may, however, be greatly relieved by demulcents, as lintseed tea, decoction of marsh mallows, mucilage of gum Arabic, thick barley-water, &c.

‡ The hematuria proceeding from a contusion of the region of the kidneys requires general and topical bleeding, with purges, and an attention to the antiphlogistic regimen. Some practitioners recommend the warm balsams in these cases; but, on account of their heating quality, their use is somewhat doubtful. Nitre is not always admissible, on account of its irritating the kidneys; but it is a powerful antiphlogistic; and, if it is used in these cases, it must be well diluted: the mucilaginous drinks are absolutely necessary, and ought to be used plentifully.

§ The only method of treating this kind of hematuria is by rest. A person subject to it ought never to ride.

|| This species of hematuria is cured by evacuating the acrid substance, and by the use of the mucilaginous drinks before mentioned. The acrid substance may be evacuated by antiphlogistic purges, or by the milder diuretics, as nitre, decoctions of parsley roots, cream of tartar,

1040.] Beside these most frequent instances of hematuria, which cannot be considered as idiopathic hemorrhagies, there are some other instances of hematuria mentioned by authors, that are still however manifestly symptomatic; such as a discharge of blood from the urinary passages, in consequence of a suppression of either the menstrual or hemorrhoidal flux. These may be considered as analogous to the hematemesis produced by the like causes; and the several reflections made above on that subject, will I think, apply here, and particularly the conclusions formed in 1023. Instances, however, of either of these cases, and especially of the first, have been extremely rare.

1041.] Of such symptomatic hematuria there is however one instance deserving notice; and that is, when a suppression of the hemorrhoidal flux, either by a communication of vessels, or merely by the vicinity of parts, occasions a determination of the blood into the vessels of the neck of the bladder, which in consequence of a rixis or anastomosis, pour out blood to be voided either with or without urine. This case is what has been named the Hemorrhoides Vesicæ; and with some propriety, when it is manifestly an evacuation vicarious of what had before been usually made from the rectum. With respect to the management of the hemorrhoides vesicæ, I would apply the whole of the doctrines that I have delivered above, with respect to the cure of the proper hemorrhoidal affection.*

1042.] There remains still to be mentioned one other instance of symptomatic hematuria, which is that which happens in the case of confluent and putrid small-pox, as well as in several other instances of putrid diseases. The blood, in such cases, may be presumed to come from the kidneys; and I apprehend that it comes from thence in consequence of that fluidity which is always produced in the blood approaching to a putrid state. Such hematuria,

whey, &c. The action of cantharides on the urinary passages is not well explained. We can scarcely believe that any part of the cantharides is absorbed from the blistering plaister; yet its effects are the same with those produced by taking the cantharides internally. The strangury, and its concomitant symptoms, may be relieved by large and plentiful dilution, and a free use of the mucilaginous drinks. Camphor has been thought to have some specific quality in preventing and curing the strangury produced by blisters, and experience warrants the conclusion: especially if the camphor is joined with opium, as in the following formula:

R. Camphor. gr. vi.
Spir. vini gutt. x.
Opii puri gr. i.
Conserv. rosar. ʒi.
M. f. bolus.

* Articles 946. et sequent.

therefore, is not to be considered as a symptom of any affection of the kidneys, but merely as a mark of the putrescent state of the blood.

1043.] In certain diseases the urine is discharged of such a deep red color, as to give a suspicion of its being tinged by blood present in it ; and this has given occasion to Sauvages, amongst the other species of hematuria, to mark the hematuria spuria, and the hematuria lateritia ; both of which, however, he supposes to be without any blood present in the urine. In many cases it is of importance, in ascertaining the nature of the disease, to determine whether the red color of urine be from blood present in it, or from a certain state of the salts and oils which are always in greater or lesser proportion constituent parts of the urine ; and the question may be commonly determined by the following considerations.

It has been observed above, that when any considerable quantity of blood is voided with the urine, there is always a portion of it deposited at the bottom of the vessel containing the voided blood and urine : and in such a case there will be no doubt in attributing the color of the urine floating above to some part of the blood diffused in it. The question, therefore, with respect to the presence of blood in the urine can only occur when no such deposition as I have mentioned appears ; and when the blood that may be supposed to be present is dissolved or diffused, and therefore entirely suspended in the urine. In this case the presence of the blood may be commonly known, 1st, By the color, which blood gives, different from any urine without blood that I have ever seen ; and I think a little experience will enable most persons to make this distinction. 2dly, By this, that the presence of blood always diminishes the transparency of the urine with which it is mixed ; and it is very seldom that urine, though very high colored, loses its transparency ; at least this hardly ever appears, if the urine is examined when recently voided. 3dly, When urine has blood mixed with it, it tinges a piece of linen dipped into it with a red color, which the highest colored urine without blood, never does. 4thly, High colored urine without blood, upon cooling, and remaining at rest in a vessel, almost always deposits a lateritious sediment ; and if upon any occasion bloody urine should deposit a sediment that may be of a portion of the blood formerly diffused in it, the difference, however, may be discerned by this, that the

sediment deposited by urine without blood, upon the urine's being again heated, will be entirely redissolved, which will not happen to any sediment from blood. Lastly, we know no state of urine without blood, which shews any portion of it, coagulable by a heat equal to that of boiling water ; but blood diffused in urine is still coagulable by such a heat ; and by this test, therefore, the presence of blood in urine may be commonly ascertained.

BOOK V.

OF PROFLUVIA, OR FLUXES, WITH PYREXIA.

1044.] **F**ORMER nosologists have established a class of diseases under the title of Fluxes, or Profluvia ; but as in this class they have brought together a great number of diseases, which have nothing in common, excepting the single circumstance of an increased discharge of fluids, and which also are, in other respects, very different from one another ; I have avoided so improper an arrangement, and have distributed most of the diseases comprehended in such a class by the nosologists, into places more natural and proper for them.* I have, indeed, still employed here the general title ; but I confine it to such fluxes only as are constantly attended with pyrexia, and which therefore necessarily belong to the class of diseases of which I am now treating.

Of the fluxes which may be considered as being very constantly febrile diseases, there are only two, the *catarrh* and *dysentery* ; and of these therefore, I now proceed to treat.

CHAPTER I.

OF THE CATARRH.

1045.] **T**HE catarrh is an increased excretion of mucus from the mucous membrane of the nose, fauces, and bronchiæ, attended with pyrexia.

* Sauvages enumerates no less than thirty-six genera of fluxes, each of which are subdivided into numerous species. Vogel has forty five genera, under the title of Profluvia, most of which are extremely different from each other in their essential qualities.

Practical writers and nosologists have distinguished the disease by different appellations, according as it happens to affect those different parts of the mucous membrane, the one part more or less than the other : But I am of opinion, that the disease, although affecting different parts, is always of the same nature, and proceeds from the same cause. Very commonly, indeed, those different parts are affected at the same time ; and therefore there can be little room for the distinction mentioned.

The disease has been frequently treated of under the title of Tussis, or Cough ; and a cough, indeed, always attends the chief form of catarrh, that is, the increased excretion from the bronchiæ : but a cough is so often a symptom of many other affections, which are very different from one another, that it is improperly employed as a generic title.

1046.] The remote cause of catarrh is most commonly cold applied to the body. This application of cold producing catarrh, can in many cases be distinctly observed ; and I believe it would always be so, were men acquainted with, and attentive to, the circumstances which determine cold to act upon the body. (See 94—96.)

From the same paragraphs we may learn what in some persons gives a predisposition to catarrh.

1047.] The disease, of which I am now to treat, generally begins with some difficulty of breathing through the nose, and with a sense of some fulness stopping up that passage. This is also often attended with some dull pain and a sense of weight in the forehead, as well as some stiffness in the motion of the eyes. These feelings, sometimes at their very first beginning, and always soon after, are attended with the distillation from the nose ; and sometimes from the eyes, of a thin fluid, which is often found to be somewhat acrid, both by its taste, and by its fretting the parts over which it passes.

1048.] These symptoms constitute the *coryza* and *gravedo* of medical authors, and are commonly attended with a sense of lassitude over the whole body. Sometimes cold shiverings are felt, at least the body is more sensible than usual to the coldness of the air ; and with all this the pulse becomes, especially in the evenings, more frequent than ordinary.

1049.] These symptoms seldom continue long before they are accompanied with some hoarseness, and a sense of

roughness and soreness in the trachea, and with some difficulty of breathing, attributed to a sense of straitness of the chest, and attended with a cough, which seems to arise from some irritation felt at the glottis. The cough is generally at first dry, occasioning pains about the chest, and more especially in the breast. Sometimes, together with these symptoms, pains resembling those of the rheumatism are felt in several parts of the body, particularly about the neck and head. While these symptoms take place, the appetite is impaired, some thirst arises, and a general lassitude is felt over all the body.

1050.] These symptoms (1047.—1049.) mark the violence and height of the disease ; which, however, does not commonly continue long. By degrees the cough becomes attended with a copious excretion of mucus ; which is at first thin, but gradually becoming thicker, is brought up with less frequent and less laborious coughing. The hoarseness and soreness of the trachea likewise going off, the febrile symptoms abating, the cough becoming less frequent, and with less expectoration, the disease soon after ceases altogether.

1051.] Such is generally the course of this disease, which is commonly neither tedious nor dangerous ; but, upon some occasions, it is in both respects otherwise. A person affected with catarrh seems to be more than usually liable to be affected by cold air ; and in that condition, if exposed to cold, the disease, which seemed to be yielding, is often brought back with greater violence than before ; and is rendered not only more tedious than otherwise it would have been, but also more dangerous by the supervening of other diseases.

1052.] Some degree of the cynanche tonsillaris often accompanies the catarrh ; and, when the latter is aggravated by a fresh application of cold, the cynanche also becomes more violent and dangerous, in consequence of the cough which is present at the same time.

1053.] When a catarrh has been occasioned by a violent cause ; when it has been aggravated by improper management ; and especially when it has been rendered more violent by fresh and repeated applications of cold, it often passes into a pneumonic inflammation attended with the utmost danger.

1054.] Unless, however, such accidents as those of 1051.—1053, happen, a catarrh, in sound persons not far ad-

vanced in life, is, I think, always a slight disease, and attended with little danger. But, in persons of a phthisical disposition, a catarrh may readily produce an hemoptysis, or perhaps form tubercles in the lungs; and more certainly, in persons who have tubercles already formed in the lungs, an accidental catarrh may occasion the inflammation of these tubercles, and in consequence produce a phthisis pulmonalis.

1055.] In elderly persons, a catarrh sometimes proves a dangerous disease. Many persons, as they advance in life, and especially after they have arrived at old age, have the natural mucus of the lungs poured out in greater quantity, and consequently requiring a frequent expectoration. If therefore a catarrh happen to such persons, and increase the influx of fluids to the lungs, with some degree of inflammation, it may produce the peripneumonia notha, which in such cases is very often fatal. (See 376. 382).

1056.] The proximate cause of catarrh seems to be an increased afflux of fluids to the mucous membrane of the nose, fauces and bronchiæ, along with some degree of inflammation affecting these parts. The latter circumstance is confirmed by this, that in the case of catarrh, the blood drawn from a vein commonly exhibits the same inflammatory crust which appears in the case of phlegmasiæ.

1057.] The application of cold which occasions a catarrh, probably operates by diminishing the perspiration usually made by the skin, and which is therefore determined to the mucus membrane of the parts above mentioned. As a part of the weight which the body daily loses by insensible evacuation, is owing to an exhalation from the lungs, there is probably a connection between this exhalation and the cutaneous perspiration, so that the one may be increased in proportion as the other is diminished: And therefore we may understand how the diminution of cutaneous perspiration, in consequence of the application of cold, may increase the afflux of fluids to the lungs, and thereby produce a catarrh.

1058.] There are some observations made by Dr. James Keil which may seem to render this matter doubtful; but there is a fallacy in his observations. The evident effects of cold in producing coryza, leave the matter in general without doubt; and there are several other circumstances which show a connection between the lungs and the surface of the body.

1059.] Whether, from the suppression of perspiration,

a catarrh be produced merely by an increased afflux of fluids, or whether the matter of perspiration be at the same time determined to the mucous glands, and there excite a particular irritation, may be uncertain; but the latter supposition is sufficiently probable.

1060.] Although, in the case of a common catarrh, which is in many instances sporadic, it may be doubtful whether any morbid matter be applied to the mucous glands; it is, however, certain, that the symptoms of catarrh do frequently depend upon such a matter being applied to these glands; as appears from the case of measles, chin-cough, and especially from the frequent occurrence of contagious and epidemical catarrh.

1061.] The mention of this last leads me to observe, that there are two species of catarrh, as I have marked in my Synopsis of Nosology. One of these, as I suppose, is produced by cold alone, as has been explained above; and the other seems manifestly to be produced by a specific contagion.

Of such contagious catarrhs,* I have pointed out in the Synopsis many instances occurring from the 14th century down to the present day. In all these instances the phenomena have been much the same; and the disease has always been particularly remarkable in this, that it has been the most widely and generally spreading epidemic known. It has seldom appeared in any one country of Europe, without appearing successively in every other part of it; and in some instances, it has been even transferred to America, and has been spread over that continent, so far as we have had opportunities of being informed.

1062.] The catarrh from contagion appears with nearly the same symptoms as those mentioned (1047—1049.) It seems often to come on in consequence of the application of cold. It comes on with more cold shivering than the catarrh arising from cold alone, and sooner shows febrile symptoms, and these likewise in a more considerable degree. Accordingly, it more speedily runs its course, which is commonly finished in a few days. It sometimes terminates by a spontaneous sweat; and this in some persons, produces a miliary eruption. It is, however, the febrile state of this disease especially, that is finished in a few days; for the cough, and other catarrhal symptoms, do frequently continue longer; and often, when they appear

* These epidemical catarrhs have been lately termed *Influenzas*.

to be going off, they are renewed by any fresh application of cold.

1063.] Considering the number of persons who are affected with catarrh, of either the one species or the other, and escape from it quickly without any hurt, it may be allowed to be a disease very free from danger; but it is not always to be considered as such; for in some persons it is accompanied with pneumonic inflammation. In the phthisically disposed, it often accelerates the coming on of phthisis; and in elderly persons, it frequently proves fatal in the manner explained above, (1053. and 1055.)

1064.] The cure of catarrh is nearly the same, whether it proceed from cold or contagion; with this difference, that in the latter case, remedies are commonly more necessary than in the former.

In the cases of a moderate disease, it is commonly sufficient to avoid cold, and to abstain from animal food for some days;* or perhaps to lie a-bed, and, by taking frequently of some mild and diluent drink a little warmed, to promote a very gentle sweat; and after these to take care to return very gradually only, to the use of the free air.

1065.] When the disease is more violent, not only the antiphlogistic regimen must be exactly observed, but various remedies also become necessary.

To take off the phlogistic diathesis which always attends this disease, blood-letting, in a larger or smaller quantity, and repeated according as the symptoms shall require, is the proper remedy.

For restoring the determination of the fluids to the surface of the body,† and at the same time for expediting the secretion of mucus in the lungs, which may take off the inflammation of its membrane, vomiting is the most effectual means.

* Perhaps an abstinence from all food would accelerate the cure: The mucilaginous drinks ought to be taken in considerable quantities, and they are somewhat nutritive.

† The means of producing a gentle and continued perspiration have been mentioned in a former note. In catarrh, however, the use of the warmer sudorifics seems most effectual.

The elixir paregoricum, diluted with whey, especially whey made with the dulcified spirit of nitre, is of singular use; but it ought not to be given if there is a considerable degree of phlogistic diathesis. In this case, a spoonful of the following solution may be given every two or three hours, till a sweat breaks out:

R. Tart. emet. gr. ii.

Aq. font. ℥vi.

Syr. Althææ ℥ii.

M.

It will be necessary for the patient to chew occasionally some mucilaginous demulcent, as Extract of liquorice, &c. or to take a tea-spoonful of equal parts of oil and honey, in order to prevent the sharp matter from irritating the fauces. The Elect. Pectorale of the Edinburgh Pharmacopœia not only relieves the tickling, but tends to produce a salutary diaphoresis; its dose is the size of a nutmeg three or four times a-day.

For the latter purpose, it has been supposed, that squills, gum ammoniac,* the volatile alkali, and some other medicines, might be useful : but their efficacy has never appeared to me to be considerable ; and, if squills have ever been very useful, it seems to have been rather by their emetic, than by their expectorant powers.

When the inflammatory affections of the lungs seem to be considerable, it is proper, besides blood-letting, to apply blisters on some part of the thorax.

As a cough is often the most troublesome circumstance of this disease, so demulcents may be employed to alleviate it. See 373.

But after the inflammatory symptoms have much abated, if the cough should still continue, opiates afford the most effectual means of relieving it ; and in the circumstances just now mentioned, they may be very safely employed. See 375.

After the inflammatory and febrile states of this disease are almost entirely gone, the most effectual means of discussing all remains of the catarrhal affection, is by some exercise of gestation diligently employed.

CHAPTER II.

OF THE DYSENTERY.

1066.] **T**HE dysentery is a disease in which the patient has frequent stools accompanied with much griping, and followed by a tenesmus. The stools, though frequent, are generally in small quantity ; and the matter voided is chiefly mucus, sometimes mixed with blood. At the same time the natural fæces seldom appear, and, when they do, it is generally in a compact and hardened form.

1067.] This disease occurs especially in summer and autumn, at the same time with autumnal intermittent and remittent fevers ; and with these it is sometimes combined or complicated.*

* The ammoniac and squills may be joined together in the following form :

R. Lac ammoniac ℥iv.

Syr. scillit. ℥iii.

M.

This mixture must be acknowledged to be somewhat nauseous, but it has considerable efficacy. The dose of it is two, or, if the stomach can bear it, three table-spoonfuls twice a-day.

+ It appears more especially in armies encamped in low swampy grounds, and, without proper management, is highly destructive.

1068.] The disease comes on sometimes with cold shiverings, and other symptoms of pyrexia ; but more commonly the symptoms of the topical affection appear first. The belly is costive, with an unusual flatulence in the bowels. Sometimes, though more rarely, some degree of diarrhœa is the first appearance. In most cases the disease begins with griping, and a frequent inclination to go to stool. In indulging this, little is voided ; but some tenesmus attends it. By degrees, the stools become more frequent, the griping more severe, and the tenesmus more considerable. Along with these symptoms there is a loss of appetite ; and frequently sickness, nausea, and vomiting, also affecting the patient. At the same time there is always more or less of pyrexia present, which is sometimes of the remittent kind, and observes a tertian period. Sometimes the fever is manifestly inflammatory, and very often of a putrid kind. These febrile states continue to accompany the disease during its whole course, especially when it terminates soon in a fatal manner. In other cases, the febrile state almost entirely disappears, while the proper dysenteric symptoms remain for a long time after.

1069.] In the course of the disease, whether of a shorter or longer duration, the matter voided by stool is very various. Sometimes it is merely a mucous matter, without any blood, exhibiting that disease which Dr. Roderer has named the *morbus mucosus*, and others the *dysenteria alba*. For the most part, however, the mucus discharged is more or less mixed with blood. This sometimes appears only in streaks amongst the mucus ; but at other times is more copious, tinging the whole of the matter discharged ; and upon some occasions a pure and unmixed blood is voided in considerable quantity. In other respects, the matter voided is variously changed in color and consistence, and is commonly of a strong and unusually fetid odor. It is probable, that sometimes a genuine pus is voided ; and frequently a putrid sanies, proceeding from gangrenous parts. There are very often mixed with the liquid matter some films of a membranous appearance, and frequently some small masses of a seemingly sebacious matter.

1070.] While the stools consisting of these various matters are in many instances, exceedingly frequent, it is seldom that natural fæces appear in them ; and when they do appear, it is, as I have mentioned, in the form of scybala, that is, in somewhat hardened, separate balls. When these

are voided, whether by the efforts of nature, or as solicited by art, they procure a remission of all the symptoms, and more especially of the frequent stools, griping, and tenesmus.

1071.] Accompanied with these circumstances, the disease proceeds for a longer or a shorter time. When the pyrexia attending it is of a violent inflammatory kind, and more especially when it is of a very putrid nature, the disease often terminates fatally in a very few days, with all the marks of a supervening gangrene. When the febrile state is more moderate, or disappears altogether, the disease is often protracted for weeks, and even for months; but even then, after a various duration, it often terminates fatally, and generally in consequence of a return and considerable aggravation of the inflammatory and putrid states. In some cases the disease ceases spontaneously; the frequency of stools, the griping, and tenesmus, gradually diminishing, while natural stools return. In other cases, the disease with moderate symptoms, continues long, and ends in a diarrhœa, sometimes accompanied with lenteric symptoms.

1072.] The remote causes of this disease have been variously judged of. It generally arises in summer or autumn after considerable heats have prevailed for some time, and especially after very warm, and at the same time very dry states of the weather; and the disease is more frequent in warm, than in cooler climates.—It happens, therefore, in the same circumstances and seasons which considerably affect the state of the bile in the human body; but as the cholera is often without any dysenteric symptoms, and copious discharges of bile have been found to relieve the symptoms of dysentery, it is difficult to determine what connection this disease has with the state of the bile.

1073.] It has been observed, that the effluvia from very putrid animal substances, readily affect the alimentary canal; and upon some occasions they certainly produce a diarrhœa; but, whether they ever produce a genuine dysentery, I have not been able to learn with certainty.

1074.] The dysentery does often manifestly arise from the application of cold, but the disease is always contagious: and, by the propagation of such contagion, independent of cold, or other exciting causes, it becomes epidemic in camps and other places. It is, therefore, to be doubted, if the application of cold does ever produce the disease, unless where the specific contagion has been previously received

into the body : And, upon the whole, it is probable, that a specific contagion is to be considered as always the remote cause of this disease.

1075.] Whether this contagion, like many others, be of a permanent nature, and only shows its effects in certain circumstances which render it active, or if it be occasionally produced, I cannot determine. Neither, if the latter supposition be received, can I say by what means it may be generated. As little do we know any thing of its nature considered in itself ; or at most this only, that, in common with many other contagions, it appears to be commonly of a putrid nature, and capable of inducing a putrescent tendency in the human body. This, however, does not at all explain its peculiar power in inducing those symptoms which properly and essentially constitute the disease of dysentery. (1066.)

1076.] Of these symptoms the proximate cause is still obscure. The common opinion has been, that the disease depends upon an acrid matter received into, or generated in the intestines themselves, exciting their peristaltic motion, and thereby producing the frequent stools which occur in this disease. But this supposition cannot be admitted ; for in all the instances known of acrid substances applied to the intestines and producing frequent stools, they at the same time produce copious stools, as might be expected from acrid substances applied to any length of the intestines. This, however, is not the case in dysentery ; in which the stools, however frequent, are generally in very small quantity, and such as may be supposed to proceed from the lower parts of the rectum only. With respect to the superior portions of the intestines, and particularly those of the colon, it is probable they are under a preternatural and considerable degree of constriction : For, as I have observed above, the natural fæces are seldom voided ; and when they are, it is in a form which gives reason to suppose, they have been long retained in the cells of the colon, and consequently that the colon had been affected with a preternatural constriction. This is confirmed by almost all the dissections which have been made of the bodies of dysenteric patients, in which, when gangrene had not entirely destroyed the texture and form of the parts, considerable portions of the great guts have been found affected with a very considerable constriction.

1077.] I apprehend, therefore, that the proximate cause

of dysentery, or at least the chief part of the proximate cause, consists in a preternatural constriction of the colon, occasioning at the same time those spasmodic efforts which are felt in severe gripings, and which efforts, propagated downwards to the rectum, occasion there the frequent mucous stools and tenesmus. But, whether this explanation shall be admitted or not, it will still remain certain, that hardened fæces retained in the colon are the cause of the griping, frequent stools, and tenesmus; for the evacuation of these fæces, whether by nature or by art, gives relief from the symptoms mentioned; and it will be more fully and usefully confirmed by this, that the most immediate and successful cure of dysentery is obtained by an early and constant attention to the preventing the constriction, and the frequent stagnation of fæces in the colon.

1078.] In this manner I have endeavored to ascertain the proximate cause of dysentery, and therefore to point out also the principal part of the cure, which, from want of the proper view of the nature of the disease, seems to have been in several respects fluctuating and undetermined among practitioners.

1079.] The most eminent of our late practitioners, and of the greatest experience in this disease, seem to be of opinion, that the disease is to be cured most effectually by purging assiduously employed. The means may be various; but the most gentle laxatives are usually sufficient; and as they must be frequently repeated, the most gentle are the most safe; the more especially as an inflammatory state so frequently accompanies the disease. Whatever laxatives produce an evacuation of natural fæces, and a consequent remission of the symptoms, will be sufficient to effectuate the cure. But if gentle laxatives shall not produce the evacuation now mentioned, some more powerful medicines must be employed;* and I have found no-

* I shall subjoin some formulas suitable for procuring a passage in the dysentery.

Rx. Infus. senn. ℥ii.

Mannæ opt. ℥i.

M. f. haust.

Rx. Mannæ ℥i.

Sal. glauher, ℥ss.

Solve in aq. bullient. ℥iii. ; et adde

Tinct. Cardamomi ℥i.

Where stronger purgatives are requisite,

Rx. Resin. Jalap. gr. x. vel xv.

Terē in mortario marmoreo, cum

thing more proper or convenient than tartar emetic, given in small doses, and at such intervals as may determine their operation to be chiefly by stool. Rhubarb, so frequently employed, is in several respects amongst the most improper purgatives.

1080.] Vomiting has been held a principal remedy in this disease; and may be usefully employed in the beginning of it, with a view to both the state of the stomach and of the fever; but it is not necessary to repeat it often; and unless the emetics employed operate also by stool, they are of little service. Ipecacuanha seems to possess no specific power; and it proves only useful when so managed as to operate chiefly by stool.

1081.] For relieving the constriction of the colon, and evacuating the retained fæces,* glysters may sometimes be useful, but they are seldom so effectual as laxatives given by the mouth; and acrid glysters, if they be not effectual in evacuating the colon, may prove hurtful by stimulating the rectum too much.

1082.] The frequent and severe griping attending this disease, leads almost necessarily to the use of opiates, and they are very effectual for the purpose of relieving from the gripes; but by occasioning an interruption of the action of the small guts, they favor the constriction of the colon, and thereby sometimes aggravate the disease; and if at the same time the use of them supersede in any measure the employing of purgatives, it commonly does much mischief; I believe it indeed to be only the neglect of purging that renders the use of opiates very necessary.†

1083.] When the gripes are both frequent and severe, they may sometimes be relieved by the employment of a semicupium, or by a fomentation of the abdomen, continued for some time. In the same case, the pains may be relieved, and, as I think, the constriction of the colon may be taken off, by blisters applied to the lower belly.‡

Amygdal. dulc. decort. No. iii.

Sacch. alb. ʒi. ;

Dein adde

Aq. cinnamom. simpl. ʒiss.

M.

* Glysters in these cases ought to be made very large, and they ought also to be very mild; as a pint and a half, or even two pints, of thin linseed tea, or decoction of marsh mallows, without any other addition.

† The griping is much relieved, and sometimes prevented, by drinking plentifully of any mucilaginous warm liquors during the operation of the purges; as barley water, with bruised prunes boiled in it.

‡ Blisters applied to the abdomen, besides being excessively troublesome, must necessarily be extremely painful.

1034.] At the beginning of this disease, when the fever is any way considerable, blood-letting, in patients of tolerable vigor, may be proper and necessary; and, when the pulse is full and hard, with other symptoms of an inflammatory disposition, blood-letting ought to be repeated. But, as the fever attending dysentery is often of a putrid kind, or does, in the course of the disease, become soon of that nature, blood-letting must be employed with great caution.

1035.] From the account now given of the nature of this disease, it will be sufficiently obvious, that the use of astringents in the beginning of it must be absolutely pernicious.

1036.] Whether an acrid matter be the original cause of this disease may be uncertain; but from the indigestion and the stagnation of fluids in the stomach which attend the disease, it may be presumed, that some acrid matters are constantly present in the stomach and intestines, and therefore that demulcents may be always usefully employed. At the same time, from this consideration that mild oily matters thrown into the intestines in considerable quantity always prove laxative, I am of opinion that the oleaginous demulcents are the most useful.*

1037.] As this disease is so often of an inflammatory or of a putrid nature, it is evident that the diet employed in it should be vegetable and acescent. Milk in its entire state

Practitioners have probably been deceived in thinking that blisters have relieved gripings in the dysentery, for they are seldom employed alone; and the effects of purges and diluents have perhaps been mistaken for the effects of a blister that might have happened to have been applied at the time when these other remedies were used. Too strict an attention to the false axiom, *post hoc ergo propter hoc*, has been the source of numerous errors in the practice of physic, and has raised the reputation of the physician and his remedies, when the merit was only due to nature.

* Some forms of these demulcents are given in the Pharmacopœias. The following may be added, for the sake of variety, as the patient frequently loaths Linctuses.

Rx. Mann. opt.

Ol. amygdal. recent. aa. ʒi.

Syr. e Cort. aurant. ʒss.

M.

Rx. Syr. althææ.

Ol. amygdal.

Elect. lenitiv. aa. ʒi.

M.

Rx. Conserv. cynosbat. ʒi.

Syr. rosar.

Ol. amygdal. aa. ʒii.

M.

Two tea-spoonfuls of any of the above tinctures may be given every hour, or every other hour, drinking, at the same time, barley-water with bruised prunes boiled in it. The cure of the dysentery is briefly comprehended in keeping the belly open, and using mucilaginous diluents and lubricants.

is of doubtful quality in many cases; but some portion of the cream is often allowable, and whey is always proper.

In the first stages of the disease, the sweet and subacid fruits are allowable, and even proper. It is in the more advanced stages only that any morbid acidity seems to prevail in the stomach, and to require some reserve in the use of acescents. At the beginning of the disease, absorbents seem to be superfluous; and by their astringent and septic powers they may be hurtful.

1088.] When this disease is complicated with an intermittent fever, and is protracted from that circumstance chiefly, it is to be treated as an intermittent, by administering the Peruvian bark, which however, in the earlier periods of the disease, is hardly to be admitted.

PART II.

OF NEUROSES, OR NERVOUS DISEASES.

1089.] **I**N a certain view, almost the whole of the diseases of the human body might be called *NERVOUS*: but there would be no use for such a general appellation; and on the other hand, it seems improper to limit the term, in the loose inaccurate manner in which it has been hitherto applied, to hysteric or hypochondriacal disorders, which are themselves hardly to be defined with sufficient precision.

1090.] In this place I propose to comprehend, under the title of *NEUROSES*, all those preternatural affections of sense or motion which are without pyrexia, as a part of the primary disease; and all those which do not depend upon a topical affection of the organs, but upon a more general affection of the nervous system, and of those powers of the system upon which sense and motion more especially depend.

1091.] Of such diseases I have established a class, under the title of *NEUROSES* or *NERVOUS DISEASES*. These I again distinguish, as they consist, either in the interruption and debility of the powers of sense and motion, or in the irregularity with which these powers are exercised; and have accordingly arranged them under the four orders of *Comata*, *Adynamiæ*, *Spasmi*, and *Vesaniæ*, to be defined as we proceed to treat of them more particularly.

BOOK I.

OF COMATA, OR THE LOSS OF VOLUNTARY MOTION.

1092.] **U**NDER this title are comprehended those affections which have been commonly called the Soporose diseases; but they are most properly distinguished by their consisting in some interruption or suppression of the powers of sense and voluntary motion, or of what are called the animal functions. These are indeed usually suspended in the time of natural sleep: But of all the diseases to be comprehended under our title, sleep, or even the appearance of it, is not constantly a symptom. Of such diseases I can mark and properly explain two genera only, which come under the title of *Apoplexy* and *Palsy*.

CHAPTER I.

OF APOPLEXY.

1093.] **A**POPLEXY is that disease in which the whole of the external and internal senses, and the whole of the voluntary motions, are in some degree abolished; while respiration and the action of the heart continue to be performed.* By its being an affection of the *whole* of the powers of sense and of voluntary motion, we distinguish it from *Palsy*; and by its being with the continuance of respiration and the action of the heart, it is distinguished from *Syncope*. I have further added to the ordinary definition of *Apoplexy*, that the abolition of the powers of sense and motion is in *some degree* only; meaning by this to imply, that under the title of *Apoplexy*, are here comprehended those diseases which, as differing from it in degree only, cannot

* "The appearance of a profound and continual sleep," is by Boerhaave judiciously added to the definition of *Apoplexy*. To distinguish between a profound sleep and *apoplexy*, which very much resemble each other, is, however, extremely easy. A man in a profound sleep may in general be roused by the application of strong stimulants to the organs of sense, which produce no effect on an apoplectic patient. To distinguish between *apoplexy* and a fit of drunkenness, is not so easy; for drunken people are sometimes incapable of being roused by any stimulants, remaining totally insensible and motionless. The fumes of the liquor with which they have been intoxicated may sometimes be discovered by smelling: A drunken fit may also be known by the paleness of the drunken man's face, and by his manner of living.

with a view either to pathology or practice, be properly distinguished from it: Such are the diseases sometimes treated of under the names of *Carus*, *Cataphora*, *Coma*, and *Lethargus*.

1094.] Apoplexy, in all its different degrees, most commonly affects persons advanced in life, and especially those above sixty years of age. It most usually affects persons of large heads and short necks,* persons of a corpulent habit, persons who have passed an indolent life and used a full diet, and especially those who have indulged in frequent intoxication. Men who have long labored under a frequent and copious discharge of blood from the hemorrhoidal vessels, upon either the suppression or spontaneous ceasing of that discharge, are particularly liable to be affected with apoplexy.

1095.] This disease frequently comes on very suddenly: But in many cases it is preceded by various symptoms, such as frequent fits of giddiness, frequent headaches, a hemorrhagy from the nose, some transitory interruption of seeing and hearing, some false vision and hearing, some transitory degree of numbness or loss of motion in the extremities, some faltering of the tongue in speaking, a loss of memory, a frequent drowsiness, and frequent fits of incubus.

1096.] An attention to these symptoms, and to the predisponent circumstances (1094.) will often enable us to foresee the more violent attacks of this disease.

1097.] When the disease comes on suddenly to a considerable degree, it has been frequently observed to have been immediately induced by violent exercise, by a full and long continued inspiration; by a fit of anger; by much external heat, especially that arising from a crowded assembly of people; by warm bathing; by intoxication; by long stooping with the head down; and by a tight ligature about the neck. The disease has been remarked to make its attacks most frequently in the spring season, and especially when the vernal heat suddenly succeeds to the winter cold.

1098.] The symptoms denoting the présence of this disease will be sufficiently known from the definition given 1093. Although the whole of the body is affected with the loss of sense and motion, it sometimes takes place more upon one side of the body than the other; and in that case the side least affected with palsy is sometimes affected with

* Different authors, one of whom is Boerhaave, have supposed that a vertebra is sometimes wanting, the neck consisting only of six instead of seven vertebrae.

convulsions. In this disease there is often a stertorous breathing : and this has been said to be a mark of the most violent state of the disease : but it is not always present even in the most complete form or most violent degree of the disease.

1099.] The proximate cause of this disease may be, in general, whatever interrupts the motion of the nervous power from the brain to the muscles, from voluntary motion ; or, in so far as sense is affected, whatever interrupts the motion of the nervous power from the sentient extremities of the nerves to the brain.

1100.] Such an interruption of the motions of the nervous power may be occasioned, either *by some compression of the origin of the nerves*, or *by something destroying the mobility of the nervous power*. Both these causes we must treat of more particularly ; and, first, of that of compression, seemingly the most frequent occasion of apoplexy, and perhaps the occasion of all those apoplexies arising from internal causes.

1101.] The loss of sense and motion in particular parts of the body, may be occasioned by a compression, either of the origin of certain nerves only, or of the same nerves in some part of their course from the brain to the organs of sense and motion. Such cases of partial compression will be more properly considered hereafter ; and the affection I am now to treat of being general, it must depend upon a very general compression of the origin of the nerves, or medullary portion of the brain ; and therefore, this more general compression only is to be considered here.

1102.] This compression of the origin of the nerves, or medullary portion of the brain, may be produced in different ways ; as,

1. By external violence fracturing and pressing in a part of the cranium.

2. By tumors, sometimes soft, sometimes bony, formed in different parts of the brain, or in its membranes, and becoming of such a bulk as to compress the medullary substance of the brain.

3. By the blood being accumulated in the blood-vessels of the brain, and distending them to such a degree as to compress the medullary portion of the same.

4. By fluids effused in different parts of the brain, or into the cavity of the cranium, and accumulated in such quantity as to occasion the compression we treat of.

And, as to this last, it is to be remarked here, that the fluids effused may be of two kinds; that is, they may be either a portion of the common mass of blood, poured out from red vessels; or a portion of serum or colorless fluid, poured out chiefly by exhalants.

1103.] Of these several causes of compression, the first is not to be considered here, because the removing it does not belong to our province; and the consideration of the second may be omitted, as in most instances it is neither to be discerned nor cured by any means yet known. The third and fourth causes of compression, as they are the most frequent, and are also most properly the subjects of our art, so they are those which deserve our particular attention: and we shall therefore endeavor to trace them further back in the series of causes which may produce them.

1104.] Both the states of over distention and of effusion may be produced by whatever increases the afflux and impetus of the blood in the arteries of the head; such as violent exercise, a violent fit of anger, external heat applied, or any strong pressure upon the descending aorta.

1105.] But both these states of over distention and of effusion, may also and seem to be more frequently produced by causes that operate by preventing the free return of the venous blood from the vessels of the head to the right ventricle of the heart.

1106.] The venous vessels of the brain are of a conformation and distribution so peculiar, as to lead us to believe, that Nature intended to retard the motion of the blood, and accumulate it in these vessels; and therefore, even very small additional resistances to the motion of the blood from these towards the right ventricle of the heart, may still more readily accumulate the blood in them. Such accumulation will most readily happen in advanced life, when the venous system in general is in a plethoric state, and when this plethora takes place especially in the venous vessels of the brain. It will, in like manner, be most apt to occur in persons whose heads are large with respect to the rest of the body; and in persons of a short neck, which is unfavorable to the return of the venous blood from the head. The accumulation of blood in the venous vessels of the brain, will also be most likely to occur in persons of a corpulent habit, either because these may be considered to be in a plethoric state, or because obesity, by occasioning a compression of the blood-vessels in other parts of

the body, more readily fills those of the brain, which are entirely free from any such compression.

1107.] These are the circumstances in the constitution of the body, which, producing a slower motion and return of the venous blood from the vessels of the head, favor an accumulation and distention in them ; and we now proceed to mention the several occasional causes, which, in every person, may directly prevent the free return of the blood from the vessels of the head towards the heart. Such are,

1. Stooping down with the head, or other situations of the body in which the head is long kept in a depending state, and in which the gravity of the blood increases the afflux of it by the arteries, and opposes the return of it by the veins.

2. A tight ligature about the neck, which compresses the veins more strongly than the arteries.

3. Any obstruction of a considerable number of the veins carrying the blood from the head, and more especially any considerable obstruction of the ascending vena cava.

4. Any considerable impediment of the free passage of the blood from the veins into the right ventricle of the heart ; and it is commonly by this, and the immediately preceding circumstances, that polypous concretions in the cava, or right ventricle, are found to occasion apoplexy.

5. The return of blood from the veins of the head towards the heart, is especially interrupted by every circumstance that produces a more difficult transmission of the blood through the vessels of the lungs. It is well known, that, at the end of every expiration, some interruption is given to the free transmission of the blood through the lungs ; and that this at the same time gives an interruption to the motion of the blood from the veins into the right ventricle of the heart. This clearly appears from that regurgitation of the blood in the veins, which occasions the alternate heaving and subsiding that is perceived in the brain of living animals when the cranium is removed, and which is observed to be synchronous with the alternate motions of respiration. From this we readily perceive, that whatever occasions a difficulty in the transmission of the blood through the lungs, must also interrupt the free return of the venous blood from the vessels of the head ; and must therefore favor, and perhaps produce, an accumulation of blood, and an over-distention in these vessels.

It is further to be observed, that as a very full inspira-

tion, continued for any length of time, occasions such an interruption of the free transmission of the blood through the lungs, as produces a suffusion of face, and a manifest turgescence of the blood-vessels of the head and neck ; so every full and long continued inspiration may occasion an accumulation of blood in the vessels of the head, to a very considerable degree. Thus, as every strong exertion of the muscular force of the body requires, and is attended with, a very full and long continued inspiration, we thence learn why the violent exertions of muscular force have been so often the immediate or exciting causes of apoplexy.

It may also be remarked, that corpulency and obesity seem to operate very much, by occasioning a more difficult transmission of the blood through the vessels of the lungs. It appears, that in fat persons, from the compression of the blood vessels in many parts of the body, the vessels of the lungs are thereby kept very full ; so that upon the least increase of bodily motion, which sends the blood faster into the lungs, a more frequent and laborious respiration becomes in such persons immediately necessary. This shows, that, in such persons, the blood is not freely transmitted through the lungs ; a circumstance which, as in other instances, must give a constant resistance to the return of blood from the vessels of the head, and therefore favor or occasion an accumulation of blood in them.

Is the motion of the blood in the vessels of the head rendered slower by study, care, and anxiety ?

1108.] It is to be observed further, that these several causes (1104.—1107.) of a preternatural fulness in the blood-vessels of the brain, may produce apoplexy in different ways, according as the fulness takes place in the arteries or in the veins.

1109.] Accordingly, *first*, the increased afflux of blood into the arteries of the brain, and an increased action in these, may either occasion a rupture of their extremities, and thereby an effusion of red blood producing compression ; or the same afflux and increased action may occasion an increased exhalation from their extremities, of a serous fluid, which, if not as quickly re-absorbed, may soon accumulate in such quantity as to produce compression.

1110.] *Secondly*, The plethoric state of the venous vessels of the brain, may operate in three different ways,

1. The fulness of the veins may give such resistance to the blood flowing into them from the arteries, as to deter-

mine the impetus of the blood to be so much greater upon the extremities of the arteries as to occasion a rupture of these, and consequently an effusion of red blood, or the *Hæmorrhagia cerebri*, which HOFFMAN considers as a frequent cause of apoplexy, and which we have before explained in 771.

2. Whilst the same resistance to the blood flowing from the arteries into the veins, increases the impetus of the blood to the former, this may, without occasioning rupture, increase the exhalation from their exhalant extremities, and produce an effusion of a serous fluid ; in the same manner as such resistance in the veins produces hydropic effusions in other parts of the body.

3. If we may suppose, as no lymphatics have been yet discovered in the brain, that the ordinary absorbents are not present there, and that the exhaled fluids are absorbed or taken up by the extremities of the veins ; this will show still more clearly that a resistance to the motion of the blood in the veins of the brain, may readily produce an accumulation of serous fluid in its cavities, and consequently a compression producing apoplexy.

1111.] Besides these causes of apoplexy from afflux in the arteries, or resistance in the veins, an effusion of serum may happen from two other causes. The one is a relaxation of the exhalants, as in other cases of hydropic diathesis prevailing in the body ; and it is not unusual for a general dropsy to end in apoplexy. The second is an over proportion of watery parts in the mass of blood, which is therefore ready to run off by the exhalants, as in the case of an *ischuria renalis* ; which, when it proves incurable, very commonly terminates in apoplexy.

1112.] We have now mentioned the several causes of apoplexy depending upon compression ; and from the whole it will appear, that the most frequent of all these causes is a plethoric state, or an accumulation and congestion of blood in the venous vessels of the head, operating, according to its degree, in producing over-distention or effusion. The frequent operation of such a cause will especially appear from a consideration of the predisponent circumstances (1094.) and from the antecedent symptoms. (1095.)

1113.] From the view I have now given of the causes of apoplexy arising from compression, it will readily appear that there is a foundation for the common distinction of this disease into the two kinds of Sanguine and Serous.

But this distinction cannot be very usefully applied in practice, as both kinds may often depend on the same cause, that is, a venous plethora, and therefore requiring very nearly the same method of cure. The only distinction that can be properly made of apoplexies from compression, is perhaps the distinction of serous apoplexy, into that depending on the plethora mentioned (1112.) and that depending on hydropic diathesis or an over proportion of water in the blood ; (1111.) the former causes giving a proper idiopathic, the latter only a symptomatic disease.

1114.] Beside the causes now mentioned, occasioning apoplexy by compression, I alledge there are other causes producing the same disease, by directly destroying the mobility of the nervous power. Such causes seem to be the mephitic, arising from fermenting liquors, and from many other sources ; the fumes arising from burning charcoal ; the fumes of mercury, of lead, and of some other metallic substances ; opium, alcohol, and many other narcotic poisons : to all which I would add the power of cold, of concussion, of electricity, and of certain passions of the mind.

1115.] None of these poisons or noxious powers seem to kill by acting first upon the organs of respiration, or upon the sanguiferous system ; and I believe their immediate and direct action to be upon the nervous power, destroying its mobility, because the same poisons show their power in destroying the irritability of muscles and of the nerves connected with them, when both these are entirely separated from the rest of the body.

1116.] It appears to me probable, that the apoplectic state in some degree accompanying, and almost always succeeding, an epileptic paroxysm, does not depend upon compression, but upon a certain state of immobility of the nervous power, produced by certain circumstances in the nervous system itself, which sometimes seem to be communicated from one part of the body to another, and at length to the brain.

1117.] The same observation may be made with respect to many instances of hysteric paroxysm ; and the circumstances, both of epileptic and hysteric paroxysms, ending in coma, or a degree of apoplexy, lead me to think, that also the apoplexy proceeding from retrocedent or atonic gout is of the same kind, or that it depends upon an immobility of the nervous power, rather than upon compression.

1118.] It may indeed happen, that as the apoplectic and gouty predispositions do often concur in the same person ; so it may consequently happen, that the apoplexy coming upon gouty persons, may sometimes depend upon compression ; and dissections may, accordingly, discover that the circumstances of such a cause had preceded. But, in many cases of the apoplexy following a retrocedent or atonic gout, no such antecedent or concomitant circumstances, as commonly occur in cases of compression, do distinctly or clearly appear ; while others present themselves, which point out an affection of the nervous power alone.

1119.] With respect, however, to the circumstances which may appear upon the dissection of persons dead of apoplexy, there may be some fallacy in judging, from those circumstances, of the cause of the disease. Whatever takes off or diminishes the mobility of the nervous power, may very much retard the motion of the blood in the vessels of the brain ; and that perhaps to the degree of increasing exhalation, or even of occasioning rupture and effusion : so that, in such cases, the marks of compression may appear, upon dissection, though the disease had truly depended on causes destroying the mobility of the nervous power. This seems to be illustrated and confirmed from what occurs in many cases of epilepsy. In some of these, after a repetition of fits, recovered from in the usual manner, a fatuity is induced, which commonly depends upon a watery inundation of the brain : and in other cases of epilepsy, when fits have been often repeated without any permanent consequence, there happens at length a fatal paroxysm ; and upon dissection it appears, that an effusion of blood had happened. This, I think, is to be considered as a cause of death, not as a cause of the disease : for in such cases, I suppose that the disease had diminished the action of the vessels of the brain, and thereby given occasion to a stagnation, which produced the appearances mentioned. And I apprehend the same reasoning will apply to the cases of retrocedent gout, which, by destroying the energy of the brain, may occasion such a stagnation as will produce rupture, effusion, and death ; and in such a case, the appearances upon dissection might lead us to think that the apoplexy had depended entirely upon compression.

1120.] The several causes mentioned in 1114, are often of such power as to occasion immediate death ; and there-

fore have not commonly been taken notice of as affording instances of apoplexy ; but, as the operation of the whole of these causes is similar and analogous, and as in most instances of the operation of these causes an apoplectic state is manifestly produced, there can be little doubt in considering most of the instances of their effects as cases of apoplexy, and therefore such as fall properly under our consideration here.

1121.] This disease of apoplexy is sometimes entirely recovered from ; but more frequently it ends in death, or in a hemiplegia. Even when an attack of the disease is recovered from, we generally find it disposed to return ; and the repeated attacks of it almost always, sooner or later, bring on the events we have mentioned.

1122.] The several events of this disease, in health, death, or another disease, may be expected and foreseen from a consideration of the predisponent circumstances (1094.) of the antecedent symptoms (1095.) of the exciting causes (1097.) of the violence and degree of the symptoms when the disease has come on (1093.) of the duration of the disease ; and the effects of the remedies employed.

1123.] From the great danger attending this disease when it has come on (1121.) it will readily appear, that our care should be chiefly directed to the prevention of it. This, I think, may be often done by avoiding the remote and exciting causes ; and how this may be accomplished, will be obvious from the enumeration of those causes given above (1097.) But it will also appear from what is said above, that the prevention of this disease will especially depend upon obviating the predisponent cause ; which, in most cases, seems to be a plethoric state of the blood-vessels of the brain. This, I think, may be obviated by different means ; and, in the first place, by a proper management of exercise and diet.

1124.] The exercise ought to be such as may support the perspiration, without heating the body or hurrying respiration ; and, therefore, commonly by some mode of gestation. In persons not liable to frequent fits of giddiness, and who are accustomed to riding on horseback, this exercise is, of all others the best. Walking, and some other modes of bodily exercise, may be employed with the restrictions just now mentioned ; but in old men, and in men of corpulent habits, bodily exercise ought always to be very moderate.

1125.] In persons who pretty early in life show the pre-disposition to apoplexy, it is probable that a low diet, with a good deal of exercise, might entirely prevent the disease; but, in persons who are advanced in life before they think of taking precautions, and are at the same time of a corpulent habit, which generally supposes their having been accustomed to full living, it might not be safe to put them upon a low diet; and it may be enough that their diet be rendered more moderate than usual, especially with respect to animal food; and that, at supper, such food should be abstained from altogether.

In drinking, all heating liquors, are to be abstained from, as much as former habits will allow and the smallest approach to intoxication is to be carefully shunned. For ordinary draught, small beer is to be preferred to plain water, as the latter is more ready to occasion costiveness, which in apoplectic habits is to be carefully avoided. The large use of tobacco in any shape may be hurtful; and except in cases where it has been accustomed to, occasion a copious excretion from the head, the interruption of which might not be safe, the use of tobacco should be avoided; and even in the circumstance mentioned, where it may be in some measure necessary, the use of it should at least be rendered as moderate as possible.

1126.] Evacuations by stool may certainly contribute to relieve the plethoric state of the vessels of the head; and, upon an appearance of any unusual turgescence in these, purging will be very properly employed: but, when no such turgescence appears, the frequent repetition of large purging might weaken the body too much; and, for preventing apoplexy, it may for the most part be enough to keep the belly regular, and rather open, by gentle laxatives.* In the summer season, it may be useful to drink, every morning, of a gentle laxative mineral water, but never in large quantity.

1127.] In the case of a plethoric state of the system, it might be supposed that blood-letting would be the most effectual means of diminishing the plethora, and of preventing its consequences; and, when an attack of apo-

* Gentle laxatives have been often enumerated in the preceding notes. In these cases, however, there is no danger to be apprehended from the use of the resinous drastics, provided that they are not given in such doses as may weaken the patient too much. They ought not to be used for the purpose of purging, but only for keeping the body moderately open; and this effect may be safely produced by five or eight grains of Rufus' pills taken occasionally at bed time, or by a tea-spoonful or two of the Tinct. jalap. or a table-spoonful of the elixir senne in the morning. The same end may, in many cases, be answered by a due attention to diet.

plexy is immediately threatened, blood-letting is certainly the remedy to be depended upon: and blood should be taken largely, if it can be done, from the jugular vein, or temporal artery. But when no threatening turgescence appears, the obviating plethora is not judiciously attempted by blood-letting, as we have endeavored to demonstrate above, (786.) In doubtful circumstances, leeches applied to the temples, or scarifications of the hind-head, may be more safe than general bleedings.

1128.] When there are manifest symptoms of a plethoric state in the vessels of the head, a seton, or pea issue, near the head, may be very useful in obviating any turgescence of the blood.

1129.] These are the means to be employed for preventing the apoplexy which might arise from a plethoric state of the vessels of the brain; and if, at the same time, great care is taken to avoid the exciting causes (1097.) these means will be generally successful.

In the cases proceeding from other causes (1114.) as their application is so immediately succeeded by the disease, they hardly allow any opportunity for prevention.

1130.] For the CURE of apoplexies from internal causes, and which I suppose to be chiefly those from compression, the usual violence and fatality of it require that the proper remedies be immediately and largely employed.

The patient is to be kept as much as possible in somewhat of an erect posture, and in cool air; and therefore neither in a warm chamber, nor covered with bed clothes, nor surrounded with a crowd of people.

1131.] In all cases of a full habit, and where the disease has been preceded by marks of a plethoric state, blood-letting is to be immediately employed, and very largely. In my opinion, it will be most effectual when the blood is taken from the jugular vein; but, if that cannot be properly done, it may be taken from the arm. The opening of the temporal artery, when a large branch can be opened, so as suddenly to pour out a considerable quantity of blood, may also be an effectual remedy; but in execution, it is more uncertain, and may be inconvenient. It may be in some measure supplied, by cupping and scarifying on the temples or hind-head. This, indeed, should seldom be omitted; and these scarifications are always preferable to the application of leeches.

With respect to every mode of blood-letting, this is to

be observed, that when in any case of apoplexy, it can be perceived that one side of the body is more affected with the loss of motion than the other, the blood-letting, if possible should be made on the side opposite to that most affected.*

1132.] Another remedy to be employed is purging, to be immediately attempted by acrid glysters;† and, at the same time, if any power of swallowing remain, by drastic purgatives given by the mouth. These, however, lest they may excite vomiting, should be given in divided portions at proper intervals.‡

1133.] Vomiting has been commended by some practitioners and writers: but, apprehending that this might impel the blood with too much violence into the vessels of the head, I have never employed it.

1134.] Another remedy to be immediately employed is blistering; and I judge that this is more effectual when applied to the head, or near to it, than when it is applied to the lower extremities. This remedy I do not consider as a stimulant, or capable of making any considerable revulsion; but, applied to the head, I suppose it useful in taking off the hemorrhagic disposition so often prevailing there.

1135.] It has been usual with practitioners, together with

* Dissections shew that the congestions producing apoplexy are always on the side not affected; and hence the propriety of the direction.

† Acrid glysters are,

R. Elect. lenitiv. ʒi.

Sal. cathartic. amar. ʒiiss.

Aq. tepid. ʒxi.

M. f. Enema.

R. Sapon. alb. ʒiss.

Solve in aq. tepid. ʒx.; cui adde

Syr. e spina cerv. ʒii.

M. f. Enema.

R. Pulp. colocynth. ʒiii.

Coque per horæ quadrantem in aq. font.

q. s. ad colaturæ ʒxii.; cui adde

Ol. olivar. ʒi.

M. f. Enema.

‡ The drastic purges are, in these cases, to be given in draughts, rather than in pills or boluses. The following form may be used:

R. Pulv. jalap. ʒi.

Rad. zinzib. ʒi.

Infus. sem. lini ʒiii.

M.

The dose of this mixture is two spoonfuls every two hours till it operate, or we may use one of the formula mentioned in the note on article 1079. especially the last, repeating it every two hours till it produces an effect.

the remedies already mentioned, to employ stimulants of various kinds ; but I am disposed to think them generally hurtful ; and they must be so, wherever the fulness of the vessels, and the impetus of the blood in these, is to be diminished. Upon this principle it is therefore agreed, that stimulants are absolutely improper in what is supposed to be a sanguine apoplexy ; but they are commonly supposed to be proper in the serous. If, however, we be right in alledging that this also commonly depends upon a plethoric state of the blood-vessels of the brain, stimulants must be equally improper in the one case as in the other.

1136.] It may be argued from the almost universal employment of stimulants, and sometimes with seeming advantage, that they may not be so hurtful as my notions of the causes of apoplexy lead me to suppose. But this argument is, in several respects, fallacious ; and particularly in this, that in a disease which, under every management, often proceeds so quickly to a fatal termination, the effects of remedies are not to be easily ascertained.

1137.] I have now mentioned the several remedies which I think adapted to the cure of apoplexy arising from compression, and should next proceed to treat of the cure of apoplexy arising from those causes that directly destroy the mobility of the nervous power. But many of those causes are often so powerful, and thereby so suddenly fatal in their effects, as hardly to allow of time for the use of remedies ; and such cases, therefore, have been so seldom the subjects of practice, that the proper remedies are not so well ascertained as to enable me to say much of them here.

1138.] When, however, the application of the causes, (1114.) is not so powerful as immediately to kill, and induces only an apoplectic state, some efforts are to be made to obviate the consequences, and to recover the patient ; and even in some cases where the causes referred to, from the ceasing of the pulse and of respiration, and from a coldness coming upon the body, have induced an appearance of death ; yet, if these appearances have not continued long, there may be means of recovering the persons to life and health. I cannot, indeed, treat this subject completely ; but for the cure of apoplexy from several of the causes mentioned (1114.) shall offer the following general directions.

1. When a poison capable of producing apoplexy has been recently taken into the stomach, if a vomiting spontaneously arises, it is to be encouraged ; or, if it does not

spontaneously come on, a vomiting is to be immediately excited by art, in order that the poison may be thrown out as quickly as possible. If, however, the poison has been taken into the stomach long before its effects have appeared, we judge that, upon their appearance, the exciting of vomiting will be useless, and may perhaps be hurtful.

2. When the poison taken into the stomach, or otherwise applied to the body, has already induced an apoplectic state, as those causes do commonly at the same time occasion a stagnation or slower motion of the blood in the vessels of the brain and of the lungs, so it will generally be proper to relieve this congestion by taking some blood from the jugular vein, or from the veins of the arm.

3. Upon the same supposition of a congestion in the brain or lungs, it will generally be proper to relieve it by means of acrid glysters producing some evacuation from the intestines.

4. When these evacuations by blood-letting and purging have been made, the various stimulants which have been commonly proposed in other cases of apoplexy, may be employed here with more probability and safety.* One of the most effectual means of rousing apoplectics of this kind, seems to be throwing cold water on several parts of the body, or washing the body all over with it.

5. Although the poison producing apoplexy happens to be so powerful as very soon to occasion the appearances of death above-mentioned; yet if this state has not continued long, the patient may often be recoverable; and the recovery is to be attempted by the same means that are directed to be employed for the recovery of drowned persons, and which are now commonly known.

CHAPTER II.

O F P A L S Y.

1139.] **P**ALSY is a disease consisting in a loss of the power of voluntary motion, but affecting certain parts of the body only, and by this it is distinguished from apoplexy. (1093.) One of the most frequent forms of

* The stimulants are various according to the various parts of the body to which they are generally applied, as volatile and vinous spirits, or vinegar, to the nose and temples; acrid essential oils, mixed with thrice their weight of hogs-lard, to the breast and back; blisters, hot sinapisms, and warm fomentations, with horse-radish, to the extremities; frictions with warm brushes; the actual cautery to the soles of the feet, and palms of the hands, with several others, which are more particularly described in the notes on article 1160. *et seq.*

palsy is when it affects the whole of the muscles on one side of the body ; and then the disease is named a *Hemiplegia*.

1140.] The loss of the power of voluntary motion may be owing either to a morbid affection of the muscles or organs of motion, by which they are rendered unfit for motion ; or to an interruption of the influx of the nervous power into them, which is always necessary to the motions of those that are under the power of the will. The disease, from the first of these causes, as consisting in an organic and local affection, we refer entirely to the class of local diseases. I am here to consider that disease only which depends upon the interrupted influx of the nervous power ; and it is to this disease alone I would give the appellation of *Palsy*. A disease depending on an interrupted influx of the nervous power, may indeed often appear as merely a local affection ; but as it depends upon an affection of the most general powers of the system, it cannot be properly separated from the systematic affections.

1141.] In palsy, the loss of motion is often accompanied with the loss of sense ; but as this is not constantly the case, and as therefore the loss of sense is not an essential symptom of palsy, I have not taken it into my definition (1139.) and I shall not think it necessary to take any further notice of it in this treatise ; because, in so far as it is in any case a part of the paralytic affection, it must depend upon the same causes, and will be cured also by the very same remedies, as the loss of motion.

1142.] The palsy then, or loss of motion, which is to be treated of here, may be distinguished as of two kinds ; one of them depending upon an affection of the origin of the nerves in the brain, and the other depending upon an affection of the nerves in some part of their course between the brain and the organs of motion. Of the latter, as appearing in a very partial affection, I am not to speak particularly here ; I shall only treat of the more general paralytic affections, and especially of the *hemiplegia* (1139.) At the same time I expect, that what I shall say upon this subject will readily apply to both the pathology and practice in the cases of affections more limited.

1143.] The *hemiplegia* (1139.) usually begins with, or follows, a paroxysm of apoplexy ; and when the *hemiplegia*, after subsisting for some time becomes fatal, it is commonly by passing again into the state of apoplexy. The relation therefore or affinity between the two diseases, is

sufficiently evident ; and is further strongly confirmed by this, that the hemiplegia comes upon persons of the same constitution (1094.) and is preceded by the same symptoms (1097.) that have been taken notice of with respect to apoplexy.

1144.] When a fit of apoplexy has gone off, and there remains a state of palsy appearing as a partial affection only, it might perhaps be supposed that the origin of the nerves is in a great measure relieved ; but in so far as commonly there still remain the symptoms of the loss of memory, and of some degree of fatuity, these, I think, show that the organ of intellect, or the common origin of the nerves, is still considerably affected.

1145.] Thus, the hemiplegia, from its evident connection with, and near relation to apoplexy, may be properly considered as depending upon like causes ; and consequently either upon a compression preventing the flow of the nervous power from the brain into the organs of motion, or upon the application of narcotic or other powers (1114.) rendering the nervous power unfit to flow in the usual and proper manner.

1146.] We begin with considering the cases depending upon compression.

The compression occasioning hemiplegia may be of the same kind, and of all the different kinds that produce apoplexy ; and therefore either from tumor, over-distention, or effusion. The existence of tumor giving compression, may often be better discerned in the case of palsy than in that of apoplexy, as its effects often appear at first in a very partial affection.

1147.] The other modes of compression, that is, of over-distention and effusion, may, and commonly do, take place, in hemiplegia : and when they do, their operation here differs from that producing apoplexy, by its effects being partial, and on one side of the body only.

It may seem difficult to conceive that an over-distention can take place in the vessels on one side of the brain only ; but it may be understood : and in the case of a palsy which is both partial and transitory, it is perhaps the only condition of the vessels of the brain that can be supposed. In a hemiplegia, indeed, which subsists for any length of time, there is probably always an effusion, either sanguine or serous : but it is likely that even the latter must be supported by a remaining congestion in the blood-vessels.

1148.] That a sanguine effusion can happen without becoming very soon general, and thereby occasioning apoplexy and death, may also seem doubtful: but dissections prove that in fact it does happen, occasioning palsy only; though it is true, that this more commonly depends upon an effusion of serous fluid, and of this only.

1149.] Can a palsy, occasioned by a compression remain, though the compression be removed?*

1150.] From what has been said, (1143.) it will be obvious, that the hemiplegia may be prevented by all the several means proposed (1124. *et seq.*) for the prevention of apoplexy.

1151.] Upon the same grounds, the CURE of palsy must be very much the same with that of apoplexy (1129. *et seq.*) and when palsy has begun as an apoplexy, it is presumed, that, before it is to be considered as palsy, all those several remedies have been employed. Indeed, even when it happens that on the first attack of the disease the apoplectic state is not very complete, and that the very first appearance of the disease is as a hemiplegia, the affinity between the two diseases (1143.) is such as to lead to the same remedies in both cases. This is certainly proper in all those cases in which we can with much probability impute the disease to compression; and it is indeed seldom that a hemiplegia from internal causes comes on but with a considerable affection of the internal, and even of the external senses, together with other marks of a compression of the origin of the nerves.

1152.] Not only, however, where the disease can be imputed to compression, but even where it can be imputed to the application of narcotic powers, if the disease come on with the appearances mentioned at the end of the last paragraph, it is to be treated in the same manner as an apoplexy by 1130—1138.

1153.] The cure of hemiplegia, therefore, on its first attack, is the same, or nearly the same, with that of apoplexy: and it seems requisite that it should be different only, 1. When the disease has subsisted for some time; 2. When the apoplectic symptoms, or those† marking a considerable compression of the origin of the nerves, are removed; and particularly, 3. When there are no evident marks of com-

* This question may be answered in the affirmative; because the structure of the nerve may be destroyed by the compression, and the nerve may therefore remain impervious to the nervous influence after the compression has been removed.

† The most infallible of these marks is the intellectual faculties not returning.

pression, and it is at the same time known that narcotic powers have been applied.

1154.] In all these cases, the question arises, Whether stimulants may be employed, or how far the cure may be entirely trusted to such remedies? Upon this question, with respect to apoplexy, I have offered my opinion in 1135. And, with respect to hemiplegia, I am of opinion, that stimulants are almost always equally dangerous as in the cases of complete apoplexy; and particularly, 1. In all the cases of hemiplegia succeeding to a paroxysm of complete apoplexy; 2. In all the cases coming upon persons of the temperament mentioned in 1094, and after the same antecedents as those of apoplexy, 1115, and 3. In all the cases coming on with symptoms of apoplexy from compression.

1155.] It is, therefore, in the cases 1153, only, that stimulants are properly admissible: and even in the two first of these cases, in which a plethoric state of the blood-vessels of the brain may have brought on the disease, in which a disposition to that state may still continue, and in which even some degree of congestion may still remain, the use of stimulants must be an ambiguous remedy; so that perhaps it is in the third of these cases only that stimulants are clearly indicated and admissible.

1156.] These doubts with respect to the use of stimulants, may perhaps be overlooked or disregarded by those who alledge that stimulants have been employed with advantage even in those cases 1154, in which I have said they ought to be avoided.

1157.] To compromise this contrariety of opinion, I must observe, that even in the cases of hemiplegia depending upon compression, although the origin of the nerves be so much compressed as to prevent so full a flow of the nervous power as is necessary to muscular motion, yet it appears from the power of sense still remaining, that the nerves are, to a certain degree, still pervious; and therefore it is possible that stimulants applied, may excite the energy of the brain so much, as in some measure to force open the compressed nerves, and to show some return of motion in paralytic muscles. Nay, further, it may be allowed, that if these stimulants be such as act more upon the nervous than upon the sanguiferous system, they may possibly be employed without any very hurtful consequence.

1158.] But still it will be obvious, that although certain stimulants act chiefly upon the nervous system, yet they

also act always in some measure upon the sanguiferous ; so that, when they happen to have the latter effect in any considerable degree, they may certainly do much harm ; and in a disease which they do not entirely cure, the mischief arising from them may not be discerned.

1159.] Whilst the employment of stimulants is so often an ambiguous practice, we may perhaps go some length towards ascertaining the matter, by considering the nature of the several stimulants which may be employed, and some of the circumstances of their administration. With this view, therefore, I shall now mention the several stimulants that have been commonly employed, and offer some remarks upon their nature and use.

1160.] They are in the first place to be distinguished as external or internal. Of the first kind, we again distinguish them as they are applied to particular parts of the body only, or as they are more generally applied to the whole system. Of the first kind are,

1. The concentrated acids of vitriol or nitre ; involved however, in oily or unctuous substances, which may obviate their corrosive, without destroying their stimulant power.*

2. The volatile alkaline spirits, especially in their caustic state ; but involved also in oils, for the purpose just now mentioned.†

3. The same volatile spirits are frequently employed by being held to the nose, when they prove a powerful stimulus to the nervous system ; but it is at the same time probable, that they may also prove a strong stimulant to the blood-vessels of the brain.

4. A brine or strong solution of sea-salt.‡

* Rubificent ointments are compositions like the following :

Rx. Azung. porcin. ℥ii.

Acid vitriol. ℥i.

M. Or,

Rx. Unguent. basilic. flav. ℥ii.

Acid. vitriol. ℥i.

M.

They soon redden and inflame the skin ; and, when this effect is produced, they must be taken off, and the part anointed with common ointment, or with oil.

† The Linimenta volatilia of the Pharmacopœias are not so strong as the following :

Rx. Alkal. volatil. caustic. ℥i.

Ol. olivar. ℥ii.

M.

In the new London Pharmacopœia this composition is called Linimentum Ammoniac Fortius.

‡ The brine that remains in the salt-pans, after the common salt is crystallized, is the most effectual of these briny stimulants. It is called in Edinburgh Oil of Salt.

5. The essential oils of aromatic plants,* or of their parts.
6. The essential oils of turpentine, or of other such resinous substances.
7. The distilled oils of amber, or of other bituminous fossils.†
8. The rectified empyreumatic oils of animal or vegetable substances.‡
9. Various vegetable acids, particularly mustard.§
10. The acrid matter found in several insects, particularly cantharides.¶

Some of these stimulants may be either applied in substance ; or may be dissolved in ardent spirits, by which their stimulant power may be increased, or more conveniently applied.

1161.] The greater part of the substances now enumerated show their stimulant power by inflaming the skin of the part to which they are applied ; and when their application is so long continued as to produce this effect, it interrupts the continuance of their use ; and the inflammation of the part does not seem to do so much good as the frequent repetition of a more moderate stimulus.

1162.] Analogous to these stimulants is the stinging of nettles, which has been frequently commended.

Among the external stimulants, the mechanical one of friction with the naked hand, the flesh-brush, or flannel, is justly to be reckoned. Can the impregnation of the flannels to be employed, with the fumes of burning mastic, olibanum, &c. be of any service ? ¶¶

1163.] With respect to the whole of these external stimulants, it is to be observed, that they affect the part to

* The *Ol. Origan* is generally used. It ought to be mixed with some unctuous oil, as in the following formula :

Rx. *Ol. origan.* ʒii.

Azung. porc. ʒiv.

M.

The aromatic oils dissolved in spirit make an elegant application, but the distilled spirits of the plants themselves are more in use.

† They are generally used with hogs-lard, in the proportion of eight times their quantity of lard. Some practitioners, however, take only twice the quantity of lard ; but they are not so effectual as some of the rubefacients above enumerated.

‡ The use of these empyreumatic oils is not so frequent now as formerly ; they are extremely acrid, and, if not used with caution, often corrode the skin.

§ The form, in which flour of mustard is used, is called a *Sinapism*. It is mixed with an equal quantity of bread crumb or oat-meal, made into a paste with vinegar. Some practitioners add bruised garlic, in the proportion of one fourth of the quantity of mustard ; but it is extremely offensive, and the cataplasim, without it, answers sufficiently well.

¶ These insects are the basis of the blistering plaisters and ointments.

¶¶ Many practitioners have thought that such impregnations have been of singular service. The fumes of most of these resins are either flowers, as they are called in the shops, or essential oils, both of which are stimulating, and may therefore be supposed to be active. The impregnating flannels or flesh-brushes with flour of mustard is often used, and assists considerably in bringing on an inflammation.

which they are applied much more than they do the whole system, and they are therefore indeed safer in ambiguous cases; but, for the same reason, they are of less efficacy in curing a general affection.

1164.] The external applications which may be applied to affect the whole system, are the powers of heat and cold, and of electricity.

Heat, as one of the most powerful stimulants of the animal economy, has been often employed in palsies, especially by warm bathing. But as, both by stimulating the solids and rarefying the fluids, this proves a strong stimulus to the sanguiferous system, it is often an ambiguous remedy; and has frequently been manifestly hurtful in palsies depending upon a congestion of blood in the vessels of the brain. The most certain and therefore the most proper use of warm bathing in palsies, seems to be in those that have been occasioned by the application of narcotic powers. Are the natural baths more useful by the matters with which they may be naturally impregnated?*

1165.] Cold applied to the body for any length of time, is always hurtful to the paralytic persons; but if it be not very intense, nor the application long continued, and if at the same time the body be capable of a brisk reaction, such an application of cold is a powerful stimulant of the whole system, and has often been useful in curing palsy. But, if the power of reaction in the body be weak, any application of cold may prove very hurtful.†

1166.] Electricity, in a certain manner applied, is certainly one of the most powerful stimulants that can be employed to act upon the nervous system of animals; and therefore much has been expected from it in the cure of palsy. But, as it stimulates the sanguiferous as well as the nervous system, it has been often hurtful in palsies depending upon a compression of the brain; and especially when it has been so applied as to act upon the vessels of the head. It is safer when its operation is confined to particular parts somewhat remote from the head; and, further, as the operation of electricity, when very strong can destroy the mo-

* The natural baths contain so small a quantity of impregnating substances as induces us to suspect that they cannot have any beneficial powers superior to those of ordinary warm baths.

The use of warm baths ought not to be promiscuous. In cases of palsies, arising from certain poisons, as the fumes of arsenic or metals, and their ores, the warm baths seldom fail of procuring relief, and some instances have been given by authors of complete cures having been performed by the use of baths alone.

† The very great uncertainty of the power of reaction always makes the application of cold a very doubtful remedy; and, as it is evidently hurtful wherever the reaction is weak, it ought to be used with extreme caution.

bility of the nervous power, I am of opinion, that it is always to be employed with caution, and that it is only safe when applied with moderate force, and when confined to certain parts of the body remote from the head. It is also my opinion, that its good effects are to be expected from its repetition rather than from its force, and that it is particularly suited to the cure of those palsies which have been produced by the application of narcotic powers.

1167.] Amongst the remedies of palsy, the use of exercise is not to be omitted. In a hemiplegia, bodily exercise cannot be employed; and in a more limited affection, if depending upon a compression of some part of the brain, it would be an ambiguous remedy: but, in all cases where the exercise of gestation can be employed, they are proper; as, even in cases of compression, the stimulus of such exercise is moderate, and therefore safe; and, as it always determines to the surface of the body, it is a remedy in all cases of internal congestion.

1168.] The internal stimulants employed in palsy are various, but chiefly the following.

1. The volatile alkaline salts, or spirits, as they are called, are very powerful and diffusive stimulants, operating especially on the nervous system;* and even although they operate on the sanguiferous, yet, if given in frequently repeated small rather than in large doses, their operation being transitory, is tolerably safe.

2. The vegetables of the class named Tetradinamia, are many of them powerful diffusive stimulants; and at the same time, as quickly passing out of the body, and therefore a transitory operation, they are often employed with safety.† As they commonly prove diuretic, they may in this way also be of service in some cases of serous palsy.

3. The various aromatics, whether employed in substance, in tincture, or in their essential oils, are often pow-

* Of these there are several formulæ in the shops, as, *Spiritus volatilis aromaticus*, *Spiritus volatilis oleosus*, *Spiritus salinus aromaticus*. Their dose is from ten to sixty drops. The *Eau de Luce* ought to be mentioned here, though it is seldom used internally, but only for smelling to, as it is extremely penetrating. It is prepared thus: Mix together in a retort forty drops of rectified oil of amber, an ounce of rectified spirit of wine, and twelve ounces of the strongest caustic volatile alkali. They must be distilled with a very moderate fire. It is seldom limpid, but has a milky appearance, owing to the imperfect solution of the oil in the spirit; and, if the alkali be not very caustic, scarcely any of the oil is dissolved.

† White mustard seeds may be given whole, in the quantity of two tea-spoonfuls in a half tea-cupful of cold water. They ought to be swallowed whole, that their acrid taste may not be perceived. The dose may be repeated twice or thrice a-day. Horse-radish is another plant of this class of vegetables that has been much recommended; it must be given in a cold watery infusion, or in an infusion in ale. The scurvy-grass is another of the same class; it may be eaten raw, or we may give forty or fifty drops of the *Spiritus cochleariæ*, either on a piece of sugar, or mixed with half an ounce of syrup, four or five times a-day. This spirit ought to be kept well corked, as it soon loses all its activity, if it be exposed to the air.

erful stimulants; but being more adhesive and inflammatory than those last mentioned, they are therefore, in all ambiguous cases, less safe.*

4. Some other acrid vegetables have been employed; but we are not well acquainted with their peculiar virtues, or proper use.

5. Some resinous substances, as guaiacum, and the terbinthinate substances, or their essential oils, have been with some probability, employed; but they are apt to become inflammatory. Decoctions of guaiacum, and some other sudorifics, have been directed to excite sweating by the application of the fumes of burning spirit of wine in the lacnicum, and have in that way been found useful.

6. Many of the fetid antispasmodic medicines have been frequently employed in palsy; but I do not perceive in what manner they are adapted to the cure of this disease, and I have not observed their good effects in any case of it.

7. Bitters and the Peruvian bark, have, also been employed; but with no propriety or advantage that I can perceive.†

1169.] With respect to the whole of these internal stimulants, it is to be observed, that they seldom prove very powerful; and wherever there is any doubt concerning the nature or state of the disease, they may readily do harm, and are often therefore of ambiguous use.

* The aromatics best adapted for stimulating, in these cases, are such as Linne calls *Spirantia*; the chief of them are, Marum, Rosemary, Lavender, &c. Their spirituous waters are much more efficacious than the plants in substance, or in any other form; and their efficacy is considerably increased by uniting them to volatile spirits, as in some of the formulæ mentioned in the first note on this article.

† In some cases, paralytic patients, for want of exercise, sink into a state of debility, with loss of appetite, and consequent emaciation, in which bitters, Peruvian bark, and other tonics, are frequently of some advantage.

BOOK II.

OF ADYNAMIÆ; OR DISEASES CONSISTING IN A WEAKNESS OR LOSS OF MOTION IN EITHER THE VITAL OR NATURAL FUNCTIONS.

CHAPTER I.

OF SYNCOPE, OR FAINTING.

1170.] **T**HIS is a disease in which the action of the heart and respiration become considerably weaker than usual, or in which for a certain time these functions cease altogether.

1171.] Physicians having observed that this affection occurs in different degrees, have endeavored to distinguish these by different appellations: but as it is not possible to ascertain these different degrees with any precision, so there can be no strict propriety in employing those different names; and I shall here comprehend the whole of the affections of this kind under the title of Syncope.

1172.] This disease sometimes comes on suddenly to a considerable degree, but sometimes also it comes on gradually; and in the latter case, it usually comes on with a sense of languor, and of anxiety about the heart, accompanied at the same time, or immediately after with some giddiness, dimness of sight, and sounding in the ears. Together with these symptoms, the pulse and respiration become weak; and often so weak, that the pulse is scarcely to be felt, or the respiration to be perceived; and sometimes these motions, for a certain time, cease altogether. While these symptoms take place, the face and whole surface of the body become pale, and more or less cold according to the degree and duration of the paroxysm. Very commonly at the beginning of this, and during its continuance, a cold sweat appears, and perhaps continues, on the forehead, as well as on some other parts of the body. During the paroxysm, the animal functions, both of

sense and motion, are always in some degree impaired, and very often entirely suspended. A paroxysm of syncope is often, after some time, spontaneously recovered from; and this recovery is generally attended with a sense of much anxiety about the heart.

Fits of syncope are frequently attended with, or end in, vomiting; and sometimes with convulsions, or an epileptic fit.

1173.] These are the phenomena in this disease; and from every view of the greatest part of them, there cannot be a doubt that the proximate cause of this disease is a very weak or total ceasing of the action of the heart. But it will be a very difficult matter to explain in what manner the several remote causes operate in producing the proximate cause. This, however, I shall attempt, though with that diffidence which becomes me in attempting a subject that has not hitherto been treated with much success.

1174.] The remote causes of syncope may, in the first place, be referred to two general heads. The one is, of those causes existing and acting in the brain, or in parts of the body remote from the heart, but acting upon it by the intervention of the brain. The other general head of the remote causes of syncope, is of those existing in the heart itself, or in parts very immediately connected with it, and thereby acting more directly upon it in producing this disease.

1175.] In entering upon the consideration of the first set of those causes (1174.) I must assume a proposition which I suppose to be fully established in physiology. It is this: That, though the muscular fibres of the heart be endowed with a certain degree of inherent power, they are still, for such action as is necessary to the motion of the blood, very constantly dependent upon a nervous power sent into them from the brain.* At least this is evident, that there are certain powers acting primarily, and perhaps only in the brain, which influence and variously modify the action of the heart. I suppose, therefore, a force very constantly during life exerted in the brain, with respect to the moving fibres of the heart, as well as of every part of the body; which force I shall call the energy of the brain: and which I suppose may be, on different occasions, stronger or weaker with respect to the heart.

* The author here differs somewhat in opinion from physiologists. He allows, indeed, that the heart possesses a *vis insita* in a certain degree, but he will not allow this *vis insita* to be sufficiently strong for carrying on the circulation; and he thinks that some energy must be imparted to the heart from the brain, in order to enable that important muscle to perform its office. In support of this opinion, we have a plain fact, which the author might have adduced, viz. that a ligature on the nerves going to the heart immediately stops its motions.

1176.] Admitting these propositions, it will be obvious, that if I can explain in what manner the first set of remote causes (1174.) diminish the energy of the brain, I shall at the same time explain in what manner these causes occasion a syncope.

1177.] To do this, I observe, that one of the most evident of the remote causes of syncope is a hemorrhagy, or an evacuation of blood, whether spontaneous or artificial. And as it is very manifest that the energy of the brain depends upon a certain fulness and tension of its blood-vessels, for which nature seems to have industriously provided by such a conformation of those blood-vessels as retards the motion of the blood both in the arteries and veins of the brain; so we can readily perceive, that evacuations of blood, by taking off the fulness and tension of the blood-vessels of the brain, and thereby diminishing its energy with respect to the heart, may occasion a syncope. In many persons, a small evacuation of blood will have this effect; and in such cases there is often a clear proof of the manner in which the cause operates, from this circumstance, that the effect can be prevented by laying the body in a horizontal posture; which, by favoring the afflux of the blood by the arteries, and retarding the return of it by the veins, preserves the necessary fulness of the vessels of the brain.

It is farther to be remarked here, that not only an evacuation of blood occasions syncope, but that even a change in the distribution of the blood, whereby a larger portion of it flows into one part of the system of blood-vessels, and consequently less into others, may occasion a syncope. It is thus I explain the syncope, that readily occurs upon the evacuation of hydropic waters, which had before filled the cavities of the abdomen or thorax. It is thus also I explain the syncope that sometimes happens on blood-letting, but which does not happen till the ligature which had been employed is untied, and admits a larger afflux of blood into the blood-vessels of the arm. Both these cases of syncope show, that an evacuation of blood does not always occasion the disease by any general effect on the whole system, but often merely by taking off the requisite fulness of the blood-vessels of the brain.

1178.] The operation of some others of the remote causes of syncope, may be explained on the following principles. Whilst the energy of the brain is, upon different occasions, manifestly stronger or weaker, it seems to be with

this condition, that a stronger exertion of it is necessarily followed by a weaker state of the same. It seems to depend upon this law in the constitution of the nervous power, that the ordinary contraction of a muscle is always alternated with a relaxation of the same ; that, unless a contraction proceeds to the degree of spasm, the contracted state cannot be long continued : and it seems to depend upon the same cause that the voluntary motions, which always require an unusual increase of exertion, occasion fatigue, debility, and at length irresistible sleep.

From this law, therefore, of the nervous power, we may understand why a sudden and violent exertion of the energy of the brain is sometimes followed by such a diminution of it as to occasion a syncope ; and it is thus I suppose that a violent fit of joy produces syncope, and even death. It is upon the same principle also, I suppose, that an exquisite pain may sometimes excite the energy of the brain more strongly than can be supported, and is therefore followed by such a diminution as must occasion fainting. But the effect of this principle appears more clearly in this, that a fainting readily happens upon the sudden remission of a considerable pain ; and thus I have seen a fainting occur upon the reduction of a painful dislocation.

1179.] It seems to be quite analogous when a syncope immediately happens on the finishing of any great and long-continued effort, whether depending on the will, or upon a propensity ; and in this way a fainting sometimes happens to a woman on the bearing of a child. This may be well illustrated by observing, that in persons already much weakened, even a very moderate effort will sometimes occasion fainting.

1180.] To explain the operation of some other causes of syncope, it may be observed, that as the exertions of the energy of the brain are especially under the influence of the will, so it is well known that those modifications of the will which are named Passions and Emotions, have a powerful influence on the energy of the brain in its action upon the heart, either in increasing or diminishing the force of that energy. Thus, anger has the former, and fear the latter effect ; and thence it may be understood how terror often occasions a syncope sometimes of the most violent kind, named Asphyxia, and sometimes death itself.

1181.] As, from what I have just mentioned, it appears, that the emotions of desire increase, and those of aversion

diminish the energy of the brain; so it may be understood, how a strong aversion, a horror, or the feeling which arises upon the sight of a very disagreeable object, may occasion fainting. As an example of this, I have known more than one instance of a person's fainting at the sight of a sore in another person.

1182.] To this head of horror and disgust, I refer the operation of those odours which in certain persons occasion syncope. It may be supposed, that those odours are endowed with a directly sedative power, and may thereby occasion syncope; but they are, many of them, with respect to other persons, evidently of a contrary quality; and it appears to me, that those odours occasion syncope only in those persons to whom they are extremely disagreeable.

1183.] It is, however, very probable, that among the causes of syncope, there are some which, analogous to all those we have already mentioned, act by a directly sedative power: And such may either be diffused in the mass of blood, and thereby communicated to the brain; or may be only taken into the stomach, which so readily and frequently communicates its affections to the brain.

1184.] Having now enumerated, and, as I hope, explained the most part of the remote causes of syncope, that either operate immediately upon the brain, or whose operation upon other parts of the body is communicated to the brain, it is proper to observe, that the most part of these causes operate upon certain persons more readily and more powerfully than upon others; and this circumstance, which may be considered as the predisponent cause of syncope, deserves to be inquired into.

It is in the first place, obvious, that the operation of some of those causes depends entirely upon an idiosyncrasy in the persons upon whom they operate; which, however, I cannot pretend to explain. But, in the next place, with respect to the greater part of the other causes, their effects seem to depend upon a temperament which is in one degree or other in common to many persons. This temperament seems to consist in a great degree of sensibility and mobility, arising from a state of debility, sometimes depending upon original conformation, and sometimes produced by accidental occurrences in the course of life.

1185.] The second set of the remote causes of syncope (1174.) or those acting directly upon the heart itself, are certain organic affections of the heart itself, or of the parts

immediately connected with it, particularly the great vessels which pour blood into, or immediately receive it from, the cavities of the heart. Thus a dilatation or aneurism of the heart, a polypus in its cavities, abscesses or ulcerations in its substance, a close adherence of the pericardium to the surface of the heart, aneurisms of the great vessels near to the heart, polypus in these, and ossifications in these or in the valves of the heart, are one or other of them conditions which, upon dissection, have been discovered in those persons who had before labored under frequent syncope.

1186.] It is obvious, that these conditions are all of them, either such as may, upon occasion, disturb the free and regular influx into, or the free egress of the blood from, the cavities of the heart; or such as may otherwise disturb its regular action, by sometimes interrupting it, or sometimes exciting it to more violent and convulsive action. The latter is what is named the Palpitation of the Heart, and it commonly occurs in the same persons who are liable to syncope.

1187.] It is this, as I judge, that leads us to perceive in what manner these organic affections of the heart and great vessels may occasion syncope: for it may be supposed, that the violent exertions made in palpitations may either give occasion to an alternate great relaxation, (1178.) or to a spasmodic contraction; and in either way suspend the action of the heart, and occasion syncope. It seems to me probable, that it is a spasmodic contraction of the heart that occasions the intermission of the pulses so frequently accompanying palpitation and syncope.

1188.] Though it frequently happens that palpitation and syncope arise, as we have said, from the organic affections above mentioned, it is proper to observe, that these diseases, even when in a violent degree, do not always depend on such causes acting directly on the heart, but are often dependent on some of those causes which we have mentioned above as acting primarily on the brain.

1189.] I have thus endeavored to give the pathology of syncope; and of the cure I can treat very shortly.

The cases of syncope depending on the second set of causes, (1174.) and fully recited in 1185, I suppose to be generally incurable; as our art, so far as I know, has not yet taught us to cure any one of those several causes of syncope (1185.)

The cases of syncope depending on the first set of causes, (1174.) and whose operation I have endeavored to explain in 1177. *et seq.* I hold to be generally curable, either by avoiding the several occasional causes there pointed out, or by correcting the predisponent causes (1184.) The latter, I think, may generally be done by correcting the debility or mobility of the system, by the means which I have already had occasion to point out in another place.*

CHAPTER II.

OF DYSPEPSIA, OR INDIGESTION.

1190.] **A** WANT of appetite, a squeamishness, sometimes a vomiting, sudden and transient distentions of the stomach, eructations of various kinds, heartburns, pains in the region of the stomach, and a bound belly, are symptoms which frequently concur in the same persons and therefore may be presumed to depend upon one and the same proximate cause. In both views, therefore, they may be considered as forming one and the same disease, to which we have given the appellation of *Dyspepsia*, set at the head of this chapter.

1191.] But as this disease is also frequently a secondary and sympathetic affection, so the symptoms above-mentioned are often joined with many others; and this has given occasion to a very confused and undetermined description of it, under the general title of Nervous Diseases, or under that of Chronic Weakness. It is proper, however, to distinguish them; and I apprehend the symptoms enumerated above are those essential to the idiopathic affection I am now to treat of.

1192.] It is indeed to be particularly observed, that these symptoms are often truly accompanied with a certain state of mind which may be considered as a part of the idiopathic affection: but I shall take no further notice of this symptom in the present chapter, as it will be fully and more properly considered in the next, under the title of Hypochondriasis.

1193.] That there is a distinct disease attended always with the greater part of the above symptoms, is rendered very probable by this, that all these several symptoms may

* See article 217, &c.

arise from one and the same cause ; that is, from an imbecility, loss of tone, and weaker action in the muscular fibres of the stomach : and I conclude, therefore, that this imbecility may be considered as the proximate cause of the disease I am to treat of under the name of *Dyspepsia*.

1194.] The imbecility of the stomach, and the consequent symptoms, (1190.) may, however, frequently depend upon some organic affection of the stomach itself, as tumor, ulcer, or schirrosity ; or upon some affection of other parts of the body communicated to the stomach, as in gout, amenorrhœa, and some others. In all these cases, however, the dyspeptic symptoms are to be considered as secondary or sympathetic affections, to be cured only by curing the primary disease. Such secondary and sympathetic cases cannot, indeed, be treated of here : but as I presume that the imbecility of the stomach may often take place without either any organic affection of this part, or any more primary affection in any other part of the body ; so I suppose and expect it will appear, from the consideration of the remote causes, that the dyspepsia may be often an idiopathic affection, and that it is therefore properly taken into the system of methodical Nosology, and becomes the subject of our consideration here.

1195.] There can be little doubt, that in most cases, the weaker action of the muscular fibres of the stomach, is the most frequent and chief cause of the symptoms mentioned in (1190.) but I dare not maintain it to be the only cause of idiopathic dyspepsia. There is, pretty certainly, a peculiar fluid in the stomach of animals, or at least a peculiar quality in the fluids, that we know to be there, upon which the solution of the aliments taken into the stomach chiefly depends : and it is at the same time probable, that the peculiar quality of the dissolving or digesting fluids may be variously changed, or that their quantity may be, upon occasion, diminished. It is therefore sufficiently probable, that a change in the quality or quantity of these fluids may produce a considerable difference in the phenomena of digestion, and particularly may give occasion to many of the morbid appearances mentioned in 1190.

1196.] This seems to be very well founded, and points out another proximate causes of dyspepsia beside that we have already assigned : but, notwithstanding this, as the peculiar nature of the digestive fluid, the changes which it may undergo, or the causes by which it may be changed,

are all matters so little known, that I cannot found any practical doctrine upon any supposition with respect to them; and as, at the same time, the imbecility of the stomach, either as causing the change in the digestive fluid, or as being induced by that change, seems always to be present, and to have a great share in occasioning the symptoms of indigestion; so I shall still consider the imbecility of the stomach as the proximate and almost sole cause of dyspepsia. And I more readily admit of this manner of proceeding; as, in my opinion, the doctrine applies very fully and clearly to the explaining the whole of the practice which experience has established as the most successful in this disease.

1197.] Considering this, then, as the proximate cause of dyspepsia, I proceed to mention the several remote causes of this disease; as they are such, as, on different occasions, seem to produce a loss of tone in the muscular fibres of the stomach. They may, I think, be considered under two heads. The *first* is, of those which act directly and immediately upon the stomach itself: The *second* is, of those which act upon the whole body, or particular parts of it, but in consequence of which the stomach is chiefly or almost only affected.

1198.] Of the first kind are,

1. Certain sedative or narcotic substances taken into the stomach; such as tea, coffee, tobacco, ardent spirits, opium, bitters, aromatics, putrids, and acescents.

2. The large and frequent drinking of warm water, or of warm watery liquids.

3. Frequent surfeit, or immoderate repletion of the stomach.

4. Frequent vomiting whether spontaneously arising, or excited by art.

5. Very frequent spitting, or rejection of saliva.

1199.] Those causes which act upon the whole body, or upon particular parts and functions of it, are,

1. An indolent and sedentary life.

2. Vexation of mind, and disorderly passions of any kind.

3. Intense study, or close application to business too long continued.

4. Excess in venery.

5. Frequent intoxication; which partly belongs to this head, partly to the former.

6. The being much exposed to moist and cold air when without exercise.

1200.] Though the disease, as proceeding from the last set of causes, may be considered as a symptomatic affection only; yet as the affection of the stomach is generally the first, always the chief, and often the only effect which these causes produce or discover, I think the affection of the stomach may be considered as the disease to be attended to in practice; and the more properly so, as in many cases the general debility is only to be cured by restoring the tone of the stomach, and by remedies first applied to this organ.

1201.] For the cure of this disease, we form three several indications; a preservative, a palliative, and a curative.

The *first* is, to avoid or remove the remote causes just now enumerated.

The *second* is, to remove those symptoms which especially contribute to aggravate and continue the disease. And,

The *third* is, to restore the tone of the stomach; that is, to correct or remove the proximate cause of the disease.

1202.] The propriety and necessity of the first indication is sufficiently evident, as the continued application, or frequent repetition of those causes, must continue the disease; may defeat the use of the remedies: or, in spite of these, may occasion the recurrence of the disease. It is commonly the neglect of this indication which renders this disease so frequently obstinate.—How the indication is to be executed, will be sufficiently obvious from the consideration of the several causes: but it is proper for the practitioner to attend to this, that the execution is often exceedingly difficult, because it is not easy to engage men to break in upon established habits, or to renounce the pursuit of pleasure; and particularly, to persuade men that these practices are truly hurtful which they have often practised with seeming impunity.

1203.] The symptoms of this disease which especially contribute to aggravate and continue it, and therefore require to be more immediately corrected or removed, are, first, the crudities of the stomach already produced by the disease, and discovered by a loss of appetite, by a sense of weight and uneasiness in the stomach, and particularly by the eructation of imperfectly digested matters.

Another symptom to be immediately corrected, is an unusual quantity, or a higher degree than usual, of acidity

present in the stomach, discovered by various disorders in digestion, and by other effects to be mentioned afterwards.

The third symptom aggravating the disease, and otherwise in itself urgent, is costiveness, and therefore constantly requiring to be relieved.

1204.] The *first* of these symptoms is to be relieved by exciting vomiting; and the use of this remedy, therefore, usually and properly begins the cure of this disease. The vomiting may be excited by various means, more gentle or more violent. The former may answer the purpose of evacuating the contents of the stomach: but emetics, and vomiting, may also excite the ordinary action of the stomach; and both, by variously agitating the system, and particularly by determining to the surface of the body, may contribute to remove the causes of the disease. But these latter effects can only be obtained by the use of emetics of the more powerful kind, such as the antimonial emetics especially are.*

1205.] The *second* symptom to be palliated, is an excess of acidity, either in quantity or quality, in the contents of the stomach. In man there is a quantity of acescent aliment almost commonly taken in, and, as I think, always undergoes an acetous fermentation in the stomach; and it is therefore that, in the human stomach, and in the stomachs of all animals using vegetable food, there is always found an acid present. This acid, however, is generally innocent, and occasions no disorder, unless either the quantity of it is large, or the acidity proceeds to a higher degree than usual. But, in either of these cases, the acid occasions various disorders, as flatulency, eructation, heartburn, gnawing pains of the stomach, irregular appetites and cravings, looseness, griping, emaciation, and debility. To obviate or remove these effects aggravating and continuing the disease, it is not only necessary to correct the acid present in the stomach; but, especially as this acid proves a ferment determining and increasing the acescency of the aliments afterwards taken in, it is proper also, as soon as possible, to correct the disposition to excessive acidity.

1206.] The acidity present in the stomach may be corrected by the use of alkaline salts, or absorbent earths;†

* The formulæ and doses of antimonial emetics have been described in a note on article 185.
† No part of the practice of physic requires more caution than the administering alkaline salts and absorbent earths. The alkaline salts, by their caustic quality, corrode the stomach, and blunt its action, when taken in too large quantities; and especially if, from a mistaken diagnosis, no acid is in the stomach. Lime water is certainly preferable to the alkaline salts; its dose

or by such substances, containing these, as can be decomposed by the acid of the stomach. Of the alkalines, the caustic is more effectual than the mild; and this accounts for the effects of lime-water. By employing absorbents, we avoid the excess of alkali, which might sometimes take place. The absorbents are different, as they form a neutral more or less laxative; and hence the difference between *magnesia alba* and other absorbents. It is to be observed, that alkalines, and absorbents may be employed to excess; as, when employed in large quantity, they may deprive the animal fluids of the acid necessary to their proper composition.

1207.] The disposition to acidity may be obviated by avoiding acescent aliments, and using animal food little capable of acescency. This, however, cannot be long continued without corrupting the state of our blood; and as vegetable food cannot be entirely avoided, the excess of their acescency may in some measure be avoided, by choosing vegetable food the least disposed to a vinous fermentation, such as leavened bread and well fermented liquors, and, instead of fresh native acids, employing vinegar.

1208.] The acid arising from acescent matters in a sound state of the stomach, does not proceed to any high degree, or is again soon involved and made to disappear: but this does not always happen; and a more copious acidity, or a higher degree of it, may be produced, either from a change in the digestive fluids, become less fit to moderate fermentation and to cover acidity, or from their not being supplied in due quantity. How the former may be occasioned, we do not well understand; but we can readily perceive that the latter, perhaps the former also, may proceed from a weaker action of the muscular fibres of the sto-

may vary from two to four ounces twice a-day, according to the urgency of the case. The absorbent earths, as chalk, crabs eyes, &c. if they do not meet with an acid, are apt to concreate into a hard indissoluble mass, by the mucus of the stomach. *Magnesia* is doubtless, in many cases, preferable to a calcareous earth: when, on account of its purgative quality, we cannot continue its use, chalk is preferable to the testaceous powders, because it is free from that glutinous substance with which testaceous powders abound, and which the more readily disposes them to concreate in the stomach. The dose of *magnesia* is from one scruple to one drachm, twice or thrice a day; and its purgative quality may, in many cases, be prevented, by adding to each dose of it ten or fifteen grains of rhubarb, and five or six drops of oil of anise-seed. The Decoctum cretaceum of the Edinburgh Pharmacopœia is a good form for the exhibition of chalk. But chalk may be given with rhubarb and oil of anise-seeds, like *magnesia*. The *Trochisci cretae* is a convenient form for giving the chalk, had the crabs eyes been omitted. The following antacid troches are both effectual and pleasant:

Rx. *Magnes. alb.* ʒvi.

Sacch. alb. ʒiii.

Nuc. mosch. ʒii.

M. f. trochisci cum mucilagin. gum. tragacanth. q. s.

mach. In certain cases, sedative passions, immediately after they arise, occasion the appearance of acidity in the stomach which did not appear before ; and the use of stimulants often corrects or obviates an acidity that would otherwise have appeared. From these considerations, we conclude, that the production and subsistence of acidity in the stomach, is to be especially prevented by restoring and exciting the proper action of it, by the several means to be mentioned hereafter.

1209.] But it is also to be further observed, that though there are certain powers in the stomach for preventing a too copious acidity, or a high degree of it, they are not however always sufficient for preventing acescency, or for covering the acidity produced ; and therefore, as long as vegetable substances remain in the stomach, their acescency may go on and increase. From hence we perceive, that a special cause of the excess of acidity may be, the too long retention of acescent matters in the stomach ; whether this may be from these matters being of more difficult solution, or from the weakness of the stomach more slowly discharging its contents into the duodenum, or from some impediment to the free evacuation of the stomach by the pylorus. The latter of these causes we are well acquainted with, in the case of a scirrhus pylorus, producing commonly the highest degree of acidity. In all the instances of this scirrhusity I have met with, I have found it incurable : but the first of these causes is to be obviated by avoiding such aliments as are of difficult solution ; and the second is to be mended by the several remedies for exciting the action of the stomach, to be mentioned afterwards.

1210.] The *third* symptom commonly accompanying dyspepsia, which requires to be immediately removed, is costiveness. There is so much connection between the several portions of the alimentary canal with respect to the peristaltic motion, that, if accelerated or retarded in any one part, the other parts of it are commonly affected in the same manner. Thus, as the brisker action of the stomach must accelerate the action of the intestines, so the slower action of the intestines must in some measure retard that of the stomach. It is therefore of consequence to the proper action of the stomach, that the peristaltic motion of the intestines determining their contents downwards, be regularly continued ; and that all costiveness, or interruption of that determination, be avoided. This may be done by the va-

rious means of exciting the action of the intestines : but it is to be observed here, that as every considerable evacuation of the intestines weakens their action, and is ready therefore to induce costiveness when the evacuation is over ; so those purgatives which produce a large evacuation, are unfit for correcting the habit of costiveness. This, therefore, should be attempted by medicines which do no more than solicit the intestines to a more ready discharge of their present contents, without either hurrying their action, or increasing the excretions made into their cavity ; either of which effects might produce a purging. There are, I think, certain medicines peculiarly proper on this occasion, as they seem to stimulate especially the great guts, and to act little on the higher parts of the intestinal canal.*

1211.] We have thus mentioned the several means of executing our second indication ; and I proceed to the *third*, which is, as we have said, the proper curative ; and it is to restore the tone of the stomach, the loss of which we consider as the proximate cause of the disease, or at least as the chief part of it. The means of satisfying this indication we refer to two heads. One is, of those means which operate directly and chiefly on the stomach itself ; and the other is, of those means which, operating upon the whole system, have their tonic effects thereby communicated to the stomach.

1212.] The medicines which operate directly on the stomach are either stimulants or tonics.

The stimulants are saline or aromatic.

The saline are acids or neutrals.

Acids of all kinds seem to have the power of stimulating the stomach, and therefore often increase appetite : but the native acids, as liable to fermentation, may otherwise do harm, and are therefore of ambiguous use. The acids, therefore, chiefly and successfully employed are the vitriolic,† muriatic,‡ and the distilled acid of vegetables, as it is found in tar-water, which are all of them antizymics §

The neutral salts answering this intention are especially those which have the muriatic acid in their composition,

* Ten or fifteen grains of Pil. Ruf. answer this purpose sufficiently well. It is to be regretted that the Author did not mention those *certain medicines* to which he alludes.

† The dose of the vitriolic acid ought not to exceed ten drops, and it should be well diluted with water.

‡ The Tinctura Martis of the Edinburgh College powerfully stimulates the stomach, and acts at the same time as a tonic ; its dose is from ten to twenty drops thrice a-day, in a sufficient quantity of any proper vehicle, and it is a very agreeable medicine.

§ i. e. Resist fermentation.

though it is presumed that neutrals of all kinds have more or less of the same virtue.*

1213.] The aromatics, and perhaps some other acrids, certainly stimulate the stomach, as they obviate the acescency and flatulency of vegetable food : but their stimulus is transitory ; and if frequently repeated, and taken in large quantities, they may hurt the tone of the stomach.†

1214.] The tonics employed to strengthen the stomach are bitters, bitters and astringents combined, and chalybeates.

Bitters are undoubtedly tonic medicines, both with respect to the stomach and the whole system : but their long-continued use has been found to destroy the tone of the stomach and of the whole system ; and, whether this is from the mere repetition of their tonic operation, or from some narcotic power joined with the tonic in them, I am uncertain.

1215.] Bitters and astringents combined are probably more effectual tonics than either of them taken singly ; and we suppose such a combination to take place in the Peruvian bark ; which therefore proves a powerful tonic, both with respect to the stomach and to the whole system. But I have some ground to suspect that the long continued use of this bark may, like bitters, destroy, both the tone of the stomach and of the whole system.‡

1216.] Chalybeates may be employed as tonics in various forms,§ and in considerable quantities, with safety. They have been often employed in the form of mineral waters, and seemingly with success : but, whether this is owing to the chalybeate in the composition of these waters, or to some other circumstances attending their use, I dare not positively determine ; but the latter opinion seems to me the more probable.

1217.] The remedies which strengthen the stomach, by being applied to the whole body, are, exercise, and the application of cold.

* The Sal digestivus, i. e. the muriatic acid saturated with vegetable fixed alkali, was thought to be preferable to common salt in promoting digestion. Hence its old name of Sal digestivus. Its superiority over common salt is however doubtful.

† This caution against the too free use of aromatics ought to be peculiarly attended to by the young practitioner. The speedy relief which they produce tempts the patient to have frequent recourse to them, which, as the author justly observes, may materially hurt the tone of the stomach, and consequently increase the disease which they were intended to remove.

‡ Forms of these tonics may be seen in the preceding notes on articles 981. 982. 992.

§ See the notes on articles 981. 982. 992. In these cases the Tinctura Martis mentioned in the note on article 1212. is as proper a form of chalybeates as any we can use. Its dose is from ten to twenty drops in any proper vehicle. A glass of cold spring water, acidulated with a few drops of this tincture, is agreeable and refreshing, and may be used as the patient's common drink ; its agreeableness may be considerably increased by adding to each half-pint glass a table-spoonful of simple cinnamon water.

As exercise strengthens the whole body, it must also strengthen the stomach ; but it does this also in a particular manner, by promoting perspiration, and exciting the action of the vessels on the surface of the body, which have a particular consent with the muscular fibres of the stomach. This particularly explains why the exercises of gestation, though not the most powerful in strengthening the whole system, are, however, very powerful in strengthening the stomach ; of which we have a remarkable proof in the effects of sailing. In strengthening the general system, as fatigue must be avoided, so bodily exercise is of ambiguous use ; and perhaps it is thereby that riding on horseback has been so often found to be one of the most powerful means of strengthening the stomach, and thereby of curing dyspepsia.

1218.] The other general remedy of dyspepsia is the application of cold ; which may be in two ways ; that is, either by the application of cold air, or of cold water. It is probable, that, in the atmosphere constantly surrounding our bodies, a certain degree of cold, considerably less than the temperature of our bodies themselves, is necessary to the health of the human body. Such a degree of cold seems to strengthen the vessels on the surface of the body, and therefore the muscular fibres of the stomach. But, further, it is well known, that if the body is in exercise sufficient to support such a determination to the surface, as to prevent the cold from producing an entire constriction of the pores ; a certain degree of cold in the atmosphere, with such exercise, will render the perspiration more considerable. From the sharp appetite that in such circumstances is commonly produced, we can have no doubt, that by the application of such cold, the tone of the stomach is considerably strengthened. Cold air, therefore, applied with exercise, is a most powerful tonic with respect to the stomach ; and this explains why, for that purpose, no exercises within doors, or in close carriages, are so useful as those in the open air.

1219.] From the same reasoning, we can perceive, that the application of cold water, or cold bathing, while it is a tonic with respect to the system in general, and especially as exciting the action of the extreme vessels, must in both respects be a powerful means of strengthening the tone of the stomach.

1220.] These are the remedies to be employed towards a radical cure of idiopathic dyspepsia ; and it might be, perhaps, expected here, that I should treat also of the various

cases of the sympathetic disease. But it will be obvious that this cannot be properly done without treating of all the diseases of which dyspepsia is a symptom, which cannot be proper in this place. It has been partly done already, and will be further treated of in the course of this work. In the mean time, it may be proper to observe, that there is not so much occasion for distinguishing between the idiopathic and sympathetic dyspepsia, as there is in many other cases of idiopathic and sympathetic diseases. For, as the sympathetic cases of dyspepsia are owing to a loss of tone in some other part of the system, which is from thence communicated to the stomach : so the tone of the stomach restored, may be communicated to the part primarily affected ; and therefore the remedies of the idiopathic may be often usefully employed, and are often the remedies chiefly employed in sympathetic dyspepsia.

1221.] Another part of our business here might be to say, how some other of the urgent symptoms, besides those above-mentioned, are to be palliated. On this subject, I think it is enough to say, that the symptoms chiefly requiring to be immediately relieved, are flatulency, heartburn, other kinds of pain in the region of the stomach, and vomiting.

The dyspeptic are ready to suppose that the whole of their disease consists in a flatulency. In this it will be obvious that they are mistaken ; but, although the flatulency is not to be entirely cured, but by mending the imbecility of the stomach by the means above-mentioned ; yet the flatulent distention of the stomach may be relieved by carminatives, as they are called, or medicines that produce a discharge of wind from the stomach ; such are the various antispasmodics, of which the most effectual is the vitriolic æther.

The heartburn may be relieved by absorbents,* antispasmodics,† or demulcents.‡

The other pains of the stomach may be sometimes relieved by carminatives,§ but most certainly by opiates.

Vomiting is to be cured most effectually by opiates thrown by injection into the anus.

* The absorbents have been described above, see note on article 1206.

† It may be doubtful whether antispasmodics are effectual in removing heartburn. Opium undoubtedly often gives relief in doses of twenty or thirty drops of laudanum.

‡ Extract of liquorice is as good a demulcent in these cases as any in the list of the *Materia Medica*. Sucking a little piece of it, and drinking a cup or two of weak lintseed tea after it, seldom fail of giving relief.

§ Carminatives suitable in these cases are the essential oils of the seeds of some aromatic umbelliferous plants, as Oil of Anisi, the dose of which is fifteen or twenty drops on a piece of sugar.

CHAPTER III.

OF HYPOCHONDRIASIS, OR THE HYPOCHONDRIAC AFFECTION, COMMONLY CALLED VAPORS, OR LOW SPIRITS.

1222.] **I**N certain persons there is a state of mind distinguished by a concurrence of the following circumstances : A languor, listlessness, or want of resolution and activity with respect to all undertakings ; a disposition to seriousness, sadness and timidity ; as to all future events, an apprehension of the worst or most unhappy state of them ; and therefore, often upon slight grounds, an apprehension of great evil. Such persons are particularly attentive to the state of their own health, to even the smallest change of feeling in their bodies ; and from any unusual feeling, perhaps of the slightest kind, they apprehend great danger, and even death itself. In respect to all these feelings and apprehensions, there is commonly the most obstinate belief and persuasion.

1223.] This state of mind is the Hypochondriasis of medical writers. See Linnæi *Genera Morborum*, Gen. 76. et Segari *Systema Symtomaticum*, Class XIII. Gen. 5. The same state of mind is what has been commonly called *Vapors* and *Low Spirits*. Though the term *Vapors* may be founded on a false theory, and therefore improper, I beg leave, for a purpose that will immediately appear, to employ it for a little here.

1224.] Vapors, then, or the state of mind described above, is, like every other state of mind, connected with a certain state of the body, which must be inquired into in order to its being treated as a disease by the art of physic.

1225.] This state of the body, however, is not very easily ascertained : for we can perceive, that on different occasions it is very different ; vapors being combined sometimes with dyspepsia, sometimes with hysteria, and sometimes with melancholia, which are diseases seemingly depending on very different states of the body.

though common practice seldom goes half that length. The Oleum Carvi is another excellent carminative, but it is very hot, and its dose must never exceed five drops; two drops are a moderate dose. The Oleum Menthæ is another good carminative; its dose is two or three drops on a piece of sugar. Two grains of the Extract of Opium, or forty drops of the Laudanum, are usually given in half a cupful of lintseed tea. The dose may be increased to 100 drops of laudanum, in the same quantity of vehicle, especially if the pain of the stomach be accompanied with vomitings.

1226.] The combination of vapors with dyspepsia is very frequent, and in seemingly very different circumstances. It is, especially, these different circumstances that I would wish to ascertain ; and I remark, that they are manifestly of two different kinds. First, as the disease occurs in young persons of both sexes, in persons of a sanguine temperament, and of a lax and flaccid habit. Secondly, as it occurs in elderly persons of both sexes, of a melancholic temperament, and of a firm and rigid habit.

1227.] These two different cases of the combination of vapors and dyspepsia, I consider as two distinct diseases, to be distinguished chiefly by the temperament prevailing in the persons affected.

As the dyspepsia of sanguine temperaments is often without vapors ; and as the vapors when joined with dyspepsia in such temperaments, may be considered as, perhaps, always a symptom of the affection of the stomach ; so to this combination of dyspepsia and vapors, I would still apply the appellation of *Dyspepsia*, and consider it as strictly the disease treated of in the preceding chapter.

But the combination of dyspepsia and vapors in melancholic temperaments, as the vapors or the turn of mind peculiar to the temperament, nearly that described above in 1222, are essential circumstances of the disease ; and as this turn of mind is often with few, or only slight symptoms of dyspepsia ; and, even though the latter be attending, as they seem to be rather the effects of the general temperament, than of any primary or topical affection of the stomach ; I consider this combination as a very different disease from the former, and would apply to it strictly the appellation of *Hypochondriasis*.

1228.] Having thus pointed out a distinction between Dyspepsia and Hypochondriasis, I shall now, using these terms in the strict sense above mentioned, make some observations which may, I think, illustrate the subject, and more clearly and fully establish the distinction proposed.

1229.] The dyspepsia often appears early in life, and is frequently much mended as life advances : but the hypochondriasis seldom appears early in life, and more usually in more advanced years only ; and more certainly still, when it has once taken place, it goes on increasing as life advances to old age.

This seems to be particularly well illustrated, by our observing the changes in the state of the mind which usually

take place in the course of life. In youth, the mind is cheerful, active, rash, and moveable : but, as life advances, the mind by degrees becomes more serious, slow, cautious, and steady ; till at length, in old age, the gloomy, timid, distrustful, and obstinate state of melancholic temperaments, is more exquisitely formed. In producing these changes, it is true, that moral causes have a share ; but it is at the same time obvious, that the temperament of the body determines the operation of these moral causes, sooner or later, and in a greater or lesser degree, to have their effects. The sanguine temperament retains longer the character of youth, while the melancholic temperament brings on more early the manners of old age.

1230.] Upon the whole, it appears, that the state of the mind which attends, and especially distinguishes hypochondriasis, is the effect of that same rigidity of the solids, torpor of the nervous power, and peculiar balance between the arterial and venous systems which occur in advanced life, and which at all times take place more or less in melancholic temperaments. If therefore there be also somewhat of a like state of mind attending the dyspepsia which occurs early in life in sanguine temperaments and lax habits, it must depend upon a different state of the body, and probably upon a weak and moveable state of the nervous power.

1231.] Agreeable to all this in dyspepsia, there is more of spasmodic affection, and the affection of the mind (1222.) is often absent, and, when present, is perhaps always of a slighter kind ; while in hypochondriasis the affection of the mind is more constant, and the symptoms of dyspepsia, or the affections of the stomach, are often absent, or, when present, are in a slighter degree.

I believe the affection of the mind is commonly different in the two diseases. In dyspepsia, it is often languor and timidity only, easily dispelled ; while, in hypochondriasis, it is generally the gloomy and rivetted apprehension of evil.

The two diseases are also distinguished by some other circumstances. Dyspepsia, as I have said, is often a symptomatic affection ; while hypochondriasis is, perhaps, always a primary and idiopathic disease.

As debility may be induced by many different causes, dyspepsia is a frequent disease ; while hypochondriasis, depending upon a peculiar temperament, is more rare.

1232.] Having thus endeavored to distinguish the two diseases, I suppose the peculiar nature and proximate cause

of *hypochondriasis* will be understood; and I proceed, therefore, to treat of its cure.

So far as the affections of the body, and particularly of the stomach, are the same here as in the case of *dyspepsia*, the method of cure might be supposed to be also the same; and accordingly the practice has been carried on with little distinction: but I am persuaded that a distinction is often necessary.

1233.] There may be a foundation here for the same preservative indication as first laid down in the cure of *dyspepsia*; (1202.) but I cannot treat this subject so clearly or fully as I could wish, because I have not yet had so much opportunity of observation as I think necessary to ascertain the remote causes; and I can hardly make use of the observations of others, who have seldom or never distinguished between the two diseases. What, indeed has been said with respect to the remote causes of *melancholia*, will often apply to the *hypochondriasis*, which I now treat of; but the subject of the former has been so much involved in a doubtful theory, that I find it difficult to select the facts that might properly and strictly apply to the latter. I delay this subject, therefore, till another occasion; but in the mean time trust, that what I have said regarding the nature of the disease, and some remarks I shall have occasion to offer in considering the method of cure, may in some measure supply my deficiency on this subject of the remote causes.

1234.] The *second* indication laid down in the cure of *dyspepsia* (1201.) has properly a place here; but it is still to be executed with some distinction.

1235.] An anorexia, and accumulation of crudities in the stomach, does not commonly occur in *hypochondriasis* as in *dyspepsia*; and therefore vomiting (1204.) is not so often necessary in the former as in the latter.

1236.] The symptom of excess of acidity, from the slow evacuation of the stomach in melancholic temperaments, often arises to a very high degree in the *hypochondriasis*; and therefore, for the same reason as in 1205, it is to be obviated and corrected with the utmost care. It is upon this account that the several antacids, and the other means of obviating acidity, are to be employed in *hypochondriasis*, and with the same attentions and considerations as in 1206. and following; with this reflection, however, that the exciting

the action of the stomach there mentioned, is to be a little differently understood, as shall be hereafter explained.

1237.] As costiveness, and that commonly to a considerable degree, is a very constant attendant of hypochondriasis, so it is equally hurtful as in dyspepsia. It may be remedied by the same means in the former as in the latter, and they are to be employed with the same restrictions as in 1210.

1238.] It is especially with respect to the *third* indication laid down in the cure of dyspepsia (1201.) that there is a difference of practice to be observed in the cure of hypochondriasis; and that often one directly opposite to that in the case of dyspepsia, is to be followed.

1239.] In dyspepsia, the chief remedies are the tonic medicines, which to me seem neither necessary nor safe in hypochondriasis; for in this there is not a loss of tone, but a want of activity that is to be remedied.

Chalybeate mineral waters have commonly been employed in hypochondriasis, and seemingly with success. But this is probably to be imputed to the amusement and exercise usually accompanying the use of these waters, rather than to the tonic power of the small quantity of iron which they contain. Perhaps the elementary water, by favoring the excretions, may have a share in relieving the disease.

1240.] Cold bathing is often highly useful to the dyspeptic, and, as a general stimulant, may sometimes seem useful to the hypochondriac; but it is not commonly so to the latter; while, on the other hand, warm bathing, hurtful to the dyspeptic, is often extremely useful to the hypochondriac.

1241.] Another instance of a contrary practice necessary in the two diseases, and illustrating their respective natures, is, that the drinking tea and coffee is always hurtful to the dyspeptic, but is commonly extremely useful to the hypochondriac.

1242.] Exercise, as it strengthens the system, and thereby the stomach, and more especially, as by increasing the perspiration, it excites the action of the stomach, it proves one of the most useful remedies in dyspepsia; and further, as, by increasing the perspiration, it excites the activity of the stomach, it likewise proves an useful remedy in the hypochondriasis. However, in the latter case, as I shall ex-

plain presently, it is still a more useful remedy by its operation upon the mind than by that upon the body.

1243.] It is now proper that we proceed to consider the most important article of our practice in this disease, and which is, to consider the treatment of the mind ; an affection of which sometimes attends dyspepsia, but is always the chief circumstance in hypochondriasis. What I am to suggest here, will apply to both diseases ; but it is the hypochondriasis that I am to keep most constantly in view.

1244.] The management of the mind in hypochondriacs, is often nice and difficult. The firm persuasion that generally prevails in such patients, does not allow their feelings to be treated as imaginary, nor their apprehension of danger to be considered as groundless, though the physician may be persuaded that it is the case in both respects. Such patients, therefore, are not to be treated either by raillery, or by reasoning.

It is said to be the manner of hypochondriacs to change often their physician ; and indeed they often do it consistently ; for a physician who does not admit the reality of the disease, cannot be supposed to take much pains to cure it, or to avert the danger of which he entertains no apprehension.

If in any case the pious fraud of a placebo be allowable, it seems to be in treating hypochondriacs ; who, anxious for relief, are fond of medicines, and, though often disappointed, will still taste every new drug that can be proposed to them.

1245.] As it is the nature of man to indulge every present emotion, so the hypochondriac cherishes his fears ; and, attentive to every feeling, finds in trifles light as air, a strong confirmation of his apprehensions. His cure, therefore, depends especially upon the interruption of his attention, or upon its being diverted to other objects than his own feelings.

1246.] Whatever aversion to application of any kind may appear in hypochondriacs, there is nothing more pernicious to them than absolute idleness, or a vacancy from all earnest pursuit. It is owing to wealth admitting of indolence, and leading to the pursuit of transitory and unsatisfying amusements, or to that of exhausting pleasures only, that the present times exhibit to us so many instances of hypochondriacism.

The occupations of business suitable to their circum-

stances and situation in life, if neither attended with emotion, anxiety, nor fatigue, are always to be admitted, and persisted in by hypochondriacs. But occupations upon which a man's fortune depends, and which are always, therefore, objects of anxiety to melancholic men ; and more particularly where such occupations are exposed to accidental interruptions, disappointments, and failures, it is from these that the hypochondriac is certainly to be withdrawn.

1247.] The hypochondriac who is not necessarily, by circumstance or habits, engaged in business, is to be drawn from his attention to his own feelings by some amusement.

The various kinds of sport and hunting, as pursued with some ardor, and attended with exercise, if not too violent, are amongst the most useful.

All those amusements which are in the open air, joined with moderate exercise, and requiring some dexterity, are generally of use.

Within doors, company which engages attention, which is willingly yielded to, and is at the same time of a cheerful kind, will be always found of great service.

Play, in which some skill is required, and where the stake is not an object of much anxiety, if not too long protracted, may often be admitted.

In dyspeptics, however, gaming, liable to sudden and considerable emotions, is dangerous ; and the long continuance of it, with night watching, is violently debilitating. But in melancholics, who commonly excel in skill, and are less susceptible of violent emotions, it is more admissible, and is often the only amusement that can engage them.

Music, to a nice ear, is a hazardous amusement, as long attention to it is very fatiguing.

1248.] It frequently happens, that amusements of every kind are rejected by hypochondriacs ; and in that case, mechanical means of interrupting thought are the remedies to be sought for. Such is to be found in brisk exercise, which requires some attention in the conduct of it.

Walking is seldom of this kind ; though, as gratifying to the restlessness of hypochondriacs, it has sometimes been found useful.

The required interruption of thought is best obtained by riding on horseback, or in driving a carriage of any kind.

The exercise of sailing, except it be in an open boat, engaging some attention, does very little service.

Exercise in an easy carriage, in the direction of which

the traveller takes no part, unless it be upon rough roads, or driven pretty quickly, and with long continuance, is of little advantage.

1249.] Whatever exercise may be employed, it will be most effectual when employed in the pursuit of a journey ; first, because it withdraws a person from many objects of uneasiness and care which might present themselves at home ; secondly, as it engages in more constant exercise, and in a greater degree of it than is commonly taken in airings about home ; and lastly, as it is constantly presenting new objects which call forth a person's attention.

1250.] In our system of Nosology we have, next to Hypochondriasis, placed the Chlorosis, because I once thought it might be considered as a genus, comprehending, besides the Chlorosis of Amenorrhœa, some species of Cachexy : but, as I cannot find this to be well founded, and cannot distinctly point out any such disease, I now omit considering Chlorosis as a genus ; and, as a symptom of Amenorrhœa, I have endeavored before to explain it under that title.

BOOK III.

OF SPASMODIC AFFECTIONS WITHOUT FEVER.

1251.] **U**NDER this title I am to comprehend all the diseases which consist in *motu abnormi* ; that is, in a preternatural state of the contraction and motion of the muscular or moving fibres in any part of the body.

1252.] It will hence appear, why, under this title, I have comprehended many more diseases than Sauvages and Sagar have comprehended under the title of Spasmi, or than Linnæus has done under the title of Motorii. But I expect it will be obvious, that upon this occasion, it would not be proper to confine our view to the affections of voluntary motion only ; and if those Nosologists have introduced into the class of Spasmi, Palpitatio and Hysteria, it will be with equal propriety that Asthma, Colica, and many other diseases, are admitted.

1253.] It has been hitherto the method of our Nosologists to divide the Spasmi into the two orders of Tonici and Clonici, Spastici, and Agitatorii ; or, as many at present use the terms, into Spasms strictly so called, and convulsions. I find, however, that many, and indeed most of the diseases to be considered under our title of Spasmodic affections, in respect to Tonic or Clonic contractions, are of a mixed kind : and, therefore, I cannot follow the usual general division ; but have attempted another, by arranging the several Spasmodic diseases according as they affect the several functions, Animal, Vital, or Natural.

SECTION I.

Of the Spasmodic Affections of the Animal Functions.

1254.] AGREEABLE to the language of the ancients, the whole of the diseases to be treated of in this section might be termed *Spasmi* ; and many of the moderns continue to apply the term in the same manner : but I think it convenient to distinguish the terms of *Spasm* and *Convulsion*, by applying the former, strictly to what has been called the *Tonic* ; and the latter, to what has been called the *Clonic* spasm. There is certainly a foundation for the use of those different terms, as there is a remarkable difference in the state of the contraction of moving fibres upon different occasions. This I have indeed pointed out before in my treatise of Physiology, but must also repeat it here.

1255.] In the exercise of the several functions of the animal economy, the contractions of the moving fibres are excited by the will, or by certain other causes specially appointed by nature for exciting those contractions ; and these other causes I name the *natural causes*. In a state of health, the moving fibres are contracted by the power of the will and by the *natural causes* only. At the same time, the contractions produced are, in force and velocity, regulated by the will, or by the circumstances of the natural causes ; and the contractions, whether produced by the one or the other, are always soon succeeded by a state of relaxation, and are not repeated but when the power of the will or of the natural causes is again applied.

1256.] Such are the conditions of the action of the moving fibres in a state of health : but in a morbid state the

contractions of the muscles and moving fibres ordinarily depending upon the will are excited without the concurrence of the will, or contrary to what the will intends; and in the other functions they are excited by the action of unusual and unnatural causes. In both cases, the contractions produced may be in two different states. The one is, when the contractions are to a more violent degree than is usual in health, and are neither succeeded by a spontaneous relaxation, nor even readily yield to an extension either from the action of antagonist muscles, or from other extending powers applied. This state of contractions is what has been called a *tonic spasm*, and is what I shall name simply and strictly a *spasm*. The other morbid state of contraction is, when they are succeeded by a relaxation, but are immediately again repeated without the concurrence of the will or of the repetition of natural causes, and are at the same time commonly, with respect to velocity and force, more violent than in a healthy state. This state of morbid contraction is what has been named a *clonic spasm*, and what I shall name simply and strictly a *convulsion*.

In this section I shall follow nearly the usual division of the spasmodic diseases into those consisting in Spasm, and those consisting in Convulsion; but it may not perhaps be in my power to follow such division exactly.

CHAPTER I.

OF TETANUS.

1257.] BOTH Nosologists and practical writers have distinguished Tetanic complaints into the several species of Tetanus, Opisthotonos, and Emprosthotonos; and I have in my Nosology put the Trismus, or Locked Jaw, as a genus distinct from the Tetanus. All this, however, I now judge to be improper; and am of opinion that all the several terms mentioned denote, and are applicable only to, different degrees of one and the same disease; the history and cure of which I shall endeavor to deliver in this chapter.

1258.] Tetanic complaints may, from certain causes, occur in every climate that we are acquainted with; but they occur most frequently in the warmest climates, and most commonly in the warmest seasons of such climates. These

complaints affect all ages, sexes, temperaments, and complexions. The causes from whence they commonly proceed, are cold and moisture applied to the body while it is very warm, and especially the sudden vicissitudes of heat and cold. Or, the disease is produced by punctures, lacerations, or other lesions of nerves in any part of the body. There are, probably some other causes of this disease; but they are neither distinctly known, nor well ascertained. Though the causes mentioned do, upon occasion, affect all sorts of persons, they seem however to attack persons of middle age more frequently than the older or younger, the male sex more frequently than the female, and the robust and vigorous more frequently than the weaker.

1259.] If the disease proceed from cold, it commonly comes on in a few days after the application of such cold; but, if it arise from a puncture or other lesion of a nerve, the disease does not commonly come on for many days after the lesion has happened, very often when there is neither pain nor uneasiness remaining in the wounded or hurt part, and very frequently when the wound has been entirely healed up.

1260.] The disease sometimes comes on suddenly to a violent degree, but more generally it approaches by slow degrees to its violent state. In this case it comes on with a sense of stiffness in the back part of the neck, which, gradually increasing, renders the motion of the head difficult and painful. As the rigidity of the neck comes on and increases, there is commonly at the same time a sense of uneasiness felt about the root of the tongue; which by degrees, becomes a difficulty of swallowing, and at length an entire interruption of it. While the rigidity of the neck goes on increasing, there arises a pain, often violent, at the lower end of the sternum, and from thence shooting into the back. When this pain arises, all the muscles of the neck, and particularly those of the back part of it, are immediately affected with spasm, pulling the head strongly backwards. At the same time, the muscles that pull up the lower jaw, which upon the first approaches of the disease were affected with some spastic rigidity, are now generally affected with more violent spasm, and set the teeth so closely together that they do not admit of the smallest opening.

This is what has been named the *Locked Jaw*, and is

often the principal part of the disease. When the disease has advanced thus far, the pain at the bottom of the sternum returns very frequently ; and with it the spasms of the hind neck and lower jaw are renewed with violence and much pain. As the disease thus proceeds, a greater number of muscles come to be affected with spasms. After those of the neck, those along the whole of the spine become affected, bending the trunk of the body strongly backwards ; and this is what has been named the *Opisthotonos*.

In the lower extremities, both the flexor and extensor muscles are commonly at the same time affected, and keep the limbs rigidly extended. Though the extensors of the head and back are usually the most strongly affected, yet the flexors, or those muscles of the neck that pull the head forward, and the muscles that should pull down the lower jaw are often at the same time strongly affected with spasm. During the whole of the disease, the abdominal muscles are violently affected with spasm, so that the belly is strongly retracted, and feels hard as a piece of board.

At length the flexors of the head and trunk become so strongly affected as to balance the extensors, and to keep the head and trunk straight, and rigidly extended, incapable of being moved in any way ; and it is to this state the term of *Tetanus* has been strictly applied. At the same time, the arms, little affected before, are now rigidly extended ; the whole of the muscles belonging to them being affected with spasms, except those that move the fingers, which often to the last retain some mobility. The tongue also long retains its mobility ; but at length it also becomes affected with spasms, which, attacking certain of its muscles only, often thrusts it violently out between the teeth.

At the height of the disease, every organ of voluntary motion seems to be affected ; and amongst the rest, the muscles of the face. The forehead is drawn up into furrows, the eyes, sometimes distorted, are commonly rigid, and immoveable in their sockets ; the nose is drawn up, and the cheeks are drawn backwards towards the ears, so that the whole countenance expresses the most violent grinning. Under these universal spasms a violent convulsion commonly comes on, and puts an end to life.

1261.] These spasms are every where attended with most violent pains. The utmost violence of spasm is however, not constant ; but, after subsisting for a minute or two, the muscles admit of some remission of their contraction,

although of no such relaxation as can allow the action of their antagonists. This remission of contraction gives also some remission of pain ; but neither is of long duration. From time to time, the violent contractions and pains are renewed sometimes every ten or fifteen minutes, and that often without any evident exciting cause. But such exciting causes frequently occur ; for almost every attempt to motion, as attempting a change of posture, endeavoring to swallow, and even to speak, sometimes gives occasion to a renewal of the spasms over the whole body.

1262.] The attacks of this disease are seldom attended with any fever. When the spasms are general and violent, the pulse is contracted, hurried, and irregular ; and the respiration is affected in like manner : but, during the remission, both the pulse and respiration usually return to their natural state. The heat of the body is commonly not increased ; frequently the face is pale, with a cold sweat upon it ; and very often the extremities are cold, with a cold sweat over the whole body. When, however, the spasms are frequent and violent, the pulse is sometimes more full and frequent than natural : the face is flushed, and a warm sweat is forced out over the whole body.

1263.] Although fever be not a constant attendant of this disease, especially when arising from a lesion of nerves ; yet, in those cases proceeding from cold, a fever sometimes has supervened, and is said to have been attended with inflammatory symptoms. Blood has been often drawn in this disease, but it never exhibits any inflammatory crust ; and all accounts seem to agree, that the blood drawn seems to be of a looser texture than ordinary, and that it does not coagulate in the usual manner.

1264.] In this disease the head is seldom affected with delirium, or even confusion of thought, till the last stage of it ; when, by the repeated shocks of a violent distemper, every function of the system is greatly disordered.

1265.] It is no less extraordinary, that, in this violent disease, the natural functions are not either immediately or considerably affected. Vomitings sometimes appear early in the disease, but commonly they are not continued ; and it is usual enough for the appetite of hunger to remain through the whole course of the disease ; and what food happens to be taken down, seems to be regularly enough digested. The excretions are sometimes affected, but not always. The urine is sometimes suppressed, or is voided

with difficulty and pain. The belly is costive : but, as we have hardly any accounts excepting of those cases in which opiates have been largely employed, it is uncertain whether the costiveness has been the effect of the opiates or of the disease. In several instances of this disease, a miliary eruption has appeared upon the skin ; but whether this be a symptom of the disease, or the effect of a certain treatment of it, is undetermined. In the mean while, it has not been observed to denote either safety or danger, or to have any effect in changing the course of the disorder.

1266.] This disease has generally proved fatal ; and this indeed may be justly supposed to be the consequence of its nature : but, as we know, that, till very lately, physicians were not well acquainted with a proper method of cure ; and that since a more proper method has been known and practised, many have recovered from this disease ; it may be therefore concluded, that the fatal tendency of it is not so unavoidable as has been imagined.

In judging of the tendency of this disease, in particular cases, we may remark, that, when arising from lesions of the nerves, it is commonly more violent, and of more difficult cure, than when proceeding from cold ; that the disease which comes on suddenly, and advances quickly to a violent degree, is always more dangerous than that which is slower in its progress. Accordingly, the disease often proves fatal before the fourth day ; and, when a patient has passed this period, he may be supposed to be in greater safety, and in general the disease is the safer the longer it has continued. It is however, to be particularly observed, that, even for many days after the fourth, the disease continues to be dangerous ; and, even after some considerable abatement of its force, it is ready to recur again with its former violence and danger. It never admits of any sudden, or what is called critical solution ; but always recedes by degrees only, and it is often very long before the whole of the symptoms disappear.

1267.] From the history of the disease now described, it will be evident, that there is no room for distinguishing the *tetanus*, *opisthotonos*, and *trismus*, or *locked jaw*, as different species of this disease, since they all arise from the same causes, and are almost constantly conjoined in the same person. I have no doubt that the *emprosthotonos* belongs also to the same genus ; and as the ancients have fre-

quently mentioned it, we can have no doubt of its having occurred : but, at the same time, it is certainly in these days a rare occurrence ; and, as I have never seen it, nor find any histories in which this particular state of the spasms is said to have prevailed, I cannot mention the other circumstances which particularly attend it, and may distinguish it from the other varieties of tetanic complaints.

1268.] This disease has put on still a different form from any of those above mentioned. The spasms have been sometimes confined to one side of the body only, and which bend it strongly to that side. This is what has been named by Sauvages the *Tetanus Lateralis*, and by some late writers the *Pleurosthotonos*. This form of the disease has certainly appeared very seldom ; and, in any of the accounts given of it, I cannot find any circumstances that would lead me to consider it as any other than a variety of the species already mentioned, or to take further notice of it here.

1269.] The pathology of this disease I cannot in any measure attempt ; as the structure of moving fibres, the state of them under different degrees of contraction, and particularly the state of the sensorium, as variously determining the motion of the nervous power, are all matters very imperfectly, or not all, known to me. In such a situation, therefore, the endeavoring to give any rules of practice, upon a scientific plan, appears to me vain and fruitless ; and towards directing the cure of this disease, we must be satisfied with having learned something useful from analogy, confirmed by experience.

1270.] When the disease is known to arise from the lesion of a nerve in any part of the body, the first, and as I judge, the most important step to be taken towards the cure, is, by every possible means, to cut off that part from all communication with the sensorium, either by cutting through the nerves in their course, or perhaps by destroying, to a certain length, their affected part or extremity.

1271.] When the cure of the disease is to be attempted by medicine, experience has taught us that opium has often proved an effectual remedy ; but that, to render it such, it must be given in much larger quantities than have been employed in any other case ; and in these larger quantities, it may, in this disease, be given more safely than the body has been known to bear in any other condition. The practice has been, to give the opium either in a solid or liquid form, not in any very large dose at once, but in moderate

doses, frequently repeated, at the interval of one, two, three, or more hours, as the violence of the symptoms seem to require.* Even when large quantities have been given in this way, it appears that the opium does not operate here in the same manner as in most other cases; for, though it procure some remission of the spasms and pains, it hardly induces any sleep, or occasions that stupor, intoxication, or delirium, which it often does in other circumstances, when much smaller quantities only have been given. It is therefore very properly observed, that, in tetanic affections, as the opium shows none of those effects by which it may endanger life, there is little or no reason for being sparing in the exhibition of it; and it may be given, probably should be given, as largely and as fast as the symptoms of the disease may seem to demand.

It is particularly to be observed, that though the first exhibition of the opium may have produced some remission of the symptoms, yet the effects of opium do not long continue in the system; and this disease being for some time ready to recur, it is commonly very necessary, by the time that the effects of the opium given may be supposed to be wearing off, and especially upon the least appearance of the return of the spasms, to repeat the exhibition of the opium in the same quantities as before. This practice is to be continued while the disease continues to show any disposition to return; and it is only after the disease has already subsisted for some time, and when considerable and long-continued remissions have taken place, that the doses of the opium may be diminished, and the intervals of exhibiting them be more considerable.

1272.] The administering of opium in this manner, has in many cases been successful; and probably would have been equally so in many others, if the opium had not been

* Though the exhibition of opium in Tetanus has been the most universal practice, it must nevertheless be acknowledged, that, in many, if not in most cases, it has been ineffectual. The disease, indeed, is in general fatal; but, as in most of the cases that terminated happily, opium has been given, as the author describes, either in large doses, or frequently repeated small doses, we must necessarily conclude that the practice ought to be followed. I have seen only one case of Tetanus; it proceeded from a wound which a carpenter received in the wrist of his left arm with a saw. The inflammation was violent: the stiffness of the neck at first appeared on the third day, when the inflammation began to abate after bleeding, and the application of emollient poultices: the pulse was weak and small; thirty drops of laudanum were given; the symptoms increased; and, on the day following, the jaw became fixed. Thirty drops of laudanum were repeated; and the symptoms abating within two hours after its exhibition, indicated a repetition of the dose, which, from its good effects, was a fourth time repeated that same day. The wound suppurated; and the day following, with two doses of forty drops of laudanum, the symptoms of Tetanus wholly disappeared, but left the patient in a most debilitated state. A costiveness supervened, that was removed with the use of manna and Glauber's salts occasionally: the patient was nourished with rich broths and wine; but he did not recover his former strength till after six weeks, although the wound healed in half that time.

too sparingly employed, either from the timidity of practitioners, or from its exhibition being prevented by that interruption of deglutition which so often attends this disease. This latter circumstance directs, that the medicine should be immediately and largely employed upon the first approach of the disease, before the deglutition becomes difficult ; or that, if this opportunity be lost, the medicine, in sufficient quantity, and with due frequency, should be thrown into the body by glysters ; which, however, does not seem to have been hitherto often practised.

1273.] It is highly probable, that, in this disease, the intestines are affected with the spasm that prevails so much in other parts of the system ; and therefore that costiveness occurs here as a symptom of the disease.* It is probably also increased by the opium, which is here so largely employed ; and, from whichever of these causes it arises, it certainly must be held to aggravate the disease, and that a relaxation of the intestinal canal will contribute to a relaxation of the spasms elsewhere. This consideration directs the frequent exhibition of laxatives while the power of deglutition remains, or the frequent exhibition of glysters when it does not ; and the good effects of both have been frequently observed.

1274.] It has been with some probability supposed, that the operation of opium in this disease, may be much assisted by joining with it some other of the most powerful antispasmodics. The most promising are musk and camphor ; and some practitioners have been of opinion, that the former has proved very useful in tetanic complaints. But, whether it be from its not having been employed of a genuine kind, or in sufficient quantity, the great advantage and propriety of its use are not yet clearly ascertained. It appears to me probable, that analogous to what happens with respect to opium, both musk and camphor might be employed in this disease, in much larger quantities than they commonly have been in other cases.

1275.] Warm bathing has been commonly employed as a remedy in this disease, and often with advantage ; but, so far as I know, it has not alone proved a cure ; and, in some cases, whether it be from the motion of the body here required, exciting the spasms, or from the fear of the bath, which some persons were seized with, I cannot determine ; but it is allowed, that the warm bath hath in some cases

* This symptom occurred in the case mentioned in the preceding note.

done harm, and even occasioned death. Partial fomentations have been much commended, and, I believe, upon good grounds: and I have no doubt but that fomentations of the feet and legs, as we now usually apply them in fevers, might, without much stirring of the patient be very assiduously employed with advantage.

1276.] Unctuous applications were very frequently employed in this disease by the ancients: and some modern practitioners have considered them as very useful. Their effects, however, have not appeared to be considerable; and, as a weak auxiliary only, attended with some inconvenience, they have been very much neglected by the British practitioners.

1277.] Bleeding has been formerly employed in this disease; but of late it has been found prejudicial, excepting in a few cases, where, in plethoric habits, a fever has supervened. In general, the state of men's bodies in warm climates is unfavorable to blood-letting: and, if we may form indications from the state of the blood drawn out of the veins, the state of this in tetanic diseases would forbid bleeding in them.

1278.] Blistering also has been formerly employed in this disease; but several practitioners assert, that blisters are constantly hurtful, and they are now generally omitted.

1279.] These are the practices that hitherto have been, generally employed; but of late we are informed by several West-India practitioners, that in many instances they have employed mercury with great advantage. We are told, that it must be employed early in the disease; that it is most conveniently administered by unction, and should be applied in that way in large quantities, so that the body may be soon filled with it, and a salivation raised, which is to be continued till the symptoms yield. Whether this method alone be generally sufficient for the cure of the disease, or if it may be assisted by the use of opium, and require this in a certain measure to be joined with it, I have not yet certainly learned.

1280.] I have been further informed, that the tetanus, in all its different degrees, has been cured by giving internally the *Pissekaum Barbadense*, or, as it is vulgarly called, the Barbadoes Tar. I think it proper to take notice of this here, although I am not exactly informed what quantities of this medicine are to be given, or in what circumstances of the disease it is most properly to be employed.

1281.] In the former edition of this work, among the remedies of tetanus I did not mention the use of cold bathing; because, though I heard of this, I was not informed of such frequent employment of it as might confirm my opinion of its general efficacy; nor was I sufficiently informed of the ordinary and proper administration of it. But now, from the information of many judicious practitioners who have frequently employed it, I can say, that it is a remedy which in numerous trials has been found to be of great service in this disease; and that, while the use of the ambiguous remedy of warm bathing is entirely laid aside, the use of cold bathing is over the whole of the West-Indies commonly employed. The administration of it is sometimes by bathing the person in the sea, or more frequently by throwing cold water from a bason or bucket upon the patient's body, and over the whole of it: when this is done, the body is carefully wiped dry, wrapped in blankets, and laid abed, and at the same time a large dose of an opiate is given. By these means a considerable remission of the symptoms is obtained; but this remission, at first, does not commonly remain long, but returning again in a few hours, the repetition both of the bathing and the opiate becomes necessary. By these repetitions, however, longer intervals of ease are obtained, and at length the disease is entirely cured; and this even happens sometimes very quickly. I have only to add, that it does not appear to me, from any accounts I have yet had, that the cold bathing has been so frequently employed, or has been found so commonly successful in the cases of tetanus in consequence of wounds, as in those from the application of cold.

1282.] Before concluding this chapter, it is proper for me to take some notice of that peculiar case of the tetanus, or trismus, which attacks certain infants soon after their birth, and has been properly enough named the Trismus Nascentium. From the subjects it affects, it seems to be a peculiar disease: for these are infants not above two weeks, and commonly before they are nine days, old; in-somuch that, in countries where the disease is frequent, if children pass the period now mentioned, they are considered as secure against its attacks. The symptom of it chiefly taken notice of, is the trismus, or locked jaw, which is by the vulgar improperly named the Falling of the Jaw. But this is not the only symptom, as, for the most part, it has all the same symptoms as the Opisthotonos and Tetanus

strictly so called, and which occur in the other varieties of tetanic complaints above described. Like the other varieties of tetanus, this is most frequent in warm climates, but it is not, like those arising from the application of cold, entirely confined to such warm climates, as instances of it have occurred in most of the northern countries of Europe. In these latter it seems to be more frequent in certain districts than in others; but in what manner limited, I cannot determine. It seems to be more frequent in Switzerland than in France. I am informed of its frequently occurring in the Highlands of Scotland; but I have never met with any instance of it in the low country. The particular causes of it are not well known; and various conjectures have been offered; but none of them are satisfying. It is a disease that has been almost constantly fatal; and this, also, commonly in the course of a few days. The women are so much persuaded of its inevitable fatality, that they seldom or never call for the assistance of our art. This has occasioned our being little acquainted with the history of the disease, or with the effects of remedies in it. Analogy, however, would lead us to employ the same remedies that have proved useful in the other cases of tetanus; and the few experiments that are yet recorded, seem to approve of such a practice.

CHAPTER II.

OF EPILEPSY.

1283.] **I**N what sense I use the term *Convulsion*, I have explained above in 1256.

The convulsions that affect the human body are in several respects various; but I am to consider here only the chief and most frequent form in which they appear, and which is in the disease named *Epilepsy*. This may be defined, as consisting in convulsions of the greater part of the muscles of voluntary motion, attended with a loss of sense, and ending in a state of insensibility and seeming sleep.

1284.] The general form or principal circumstances of this disease, are much the same in all the different persons whom it affects. It comes by fits, which often attack persons seemingly in perfect health; and, after lasting for some time, pass off, and leave the persons again in their usual

state. These fits are sometimes preceded by certain symptoms, which to persons who have before experienced such a fit, may give notice of its approach, as we shall hereafter explain; but even these preludes do not commonly occur long before the formal attack, which in most cases comes on suddenly without any such warning.

The person attacked loses suddenly all sense and power of motion; so that, if standing, he falls immediately, or perhaps, with convulsions, is thrown to the ground. In that situation he is agitated with violent convulsions, variously moving his limbs and the trunk of his body. Commonly the limbs on one side of the body are more violently or more considerably agitated than those upon the other. In all cases the muscles of the face and eyes are much affected, exhibiting various and violent distortions of the countenance. The tongue is often affected, and thrust out of the mouth; while the muscles of the lower jaw are also affected; and, shutting the mouth with violence while the tongue is thrust out between the teeth, that is often grievously wounded.

While these convulsions continue, there is commonly at the same time a frothy moisture issuing from the mouth. These convulsions have for some moments some remissions, but are suddenly again renewed with great violence. Generally, after no long time, the convulsions cease altogether; and the person for some time remains without motion, but in a state of absolute insensibility, and under the appearance of a profound sleep. After some continuance of this seeming sleep, the person sometimes suddenly, but for the most part by degrees only, recovers his senses and power of motion; but without any memory of what had passed from his being first seized with the fit. During the convulsions, the pulse and respiration are hurried and irregular; but, when the convulsions cease, they return to their usual regularity and healthy state.

This is the general form of the disease: and it varies only in different persons, or on different occasions in the same person, by the phenomena mentioned being more or less violent, or by their being of longer or shorter duration.

1285.] With respect to the proximate cause of this disease, I might say, that it is an affection of the energy of the brain, which, ordinarily under the direction of the will, is here, without any concurrence of it, impelled by preternatural causes. But I could go no farther: for, as to what is

the mechanical condition of the brain in the ordinary exertions of the will, I have no distinct knowledge; and therefore must be also ignorant of the preternatural state of the same energy of the brain under the irregular motions here produced. To form, therefore, the indications of a cure from a knowledge of the proximate cause of this disease, I must not attempt, but, from a diligent attention to the remote causes which first induce and occasionally excite the disease, I think we may often obtain some useful directions for its cure. It shall therefore be my business now to point out and enumerate these remote causes as well as I can.

1286.] The remote causes of epilepsy may be considered as occasional or predisponent. There are, indeed, certain remote causes which act independently of any predisposition; but, as we cannot always distinguish these from the others, I shall consider the whole under the usual titles of *Occasional* or *Predisponent*.

1287.] The occasional causes may, I think, be properly referred to two general heads; the *first* being of those which seem to act by directly stimulating and exciting the energy of the brain; and the *second*, of those which seem to act by weakening the same. With respect to both, for the brevity of expressing a fact, without meaning to explain the manner in which it is brought about, I shall use the terms of *Excitement* and *Collapse*. And though it be true, that with respect to some of the causes I am to mention, it may be a little uncertain whether they act in the one way or the other, that does not render it improper for us to mark, with respect to others, the mode of their operating, wherever we can do it clearly, as the doing so may often be of use in directing our practice.

1288.] First, then, of the occasional causes acting by excitement: they are either such as act immediately and directly upon the brain itself; or those which are first applied to the other parts of the body, and are from thence communicated to the brain.

1289.] The causes of excitement immediately and directly applied to the brain, may be referred to the four heads of, 1. Mechanical Stimulants; 2. Chemical Stimulus; 3. Mental Stimulants; and, 4. The peculiar Stimulus of Over Distention.

1290.] The mechanical stimulants may be, wounding instruments penetrating the cranium, and entering the substance of the brain; or splinters of a fractured cranium,

operating in the same manner ; or sharp pointed ossifications, either arising from the internal surface of the cranium, or formed in the membranes of the brain.

1291.] The chemical stimulants (1289.) may be fluids from various causes lodged in certain parts of the brain, and become acrid by stagnation or otherwise.

1292.] The mental irritations acting by excitement, are, all violent emotions of the active kind, such as joy and anger. The first of these is manifestly an exciting power, acting strongly, and immediately, on the energy of the brain. The second is manifestly, also, a power acting in the same manner. But it must be remarked, that it is not in this manner alone anger produces its effects : for it acts, also, strongly on the sanguiferous system, and may be a means of giving the stimulus of over-distention ; as, under a fit of anger, the blood is impelled into the vessels of the head with violence, and in a larger quantity.

1293.] Under the head of Mental Irritations, is to be mentioned, the sight of persons in a fit of epilepsy, which has often produced a fit of the like kind in the spectator. It may, indeed, be a question, Whether this effect be imputable to the horror produced by a sight of the seemingly painful agitations of the limbs, and of the distortions in the countenance of the epileptic person ; or if it may be ascribed to the force of imitation merely ? It is possible, that horror may sometimes produce the effect : but certainly much may be imputed to that propensity to imitation, at all times so powerful and prevalent in human nature : and so often operating in other cases of convulsive disorders, which do not present any spectacle of horror.

1294.] Under the same head of Mental Irritation, I think proper to mention as an instance of it, the *Epilepsia Simulata*, or the Feigned Epilepsy, so often taken notice of. Although this, at first, may be entirely feigned, I have no doubt but that the repetition renders it at length real. The history of Quietism and of Exorcisms leads me to this opinion : and which receives a confirmation from what we know of the power of imagination, in renewing epileptic and hysteric fits.

1295.] I come now to the fourth head of the irritations applied immediately to the brain, and which I apprehend to be that of the Over Distention of the blood-vessels in that organ. That such a cause operates in producing epilepsy, is probable from this, that the dissections of persons

dead of epilepsy, has commonly discovered the marks of a previous congestion in the blood-vessels of the brain. This, perhaps may be supposed the effect of the fit which proved fatal: but that the congestion was previous thereto, is probable from the epilepsy being so often joined with headach, mania, palsy, and apoplexy; all of them diseases depending upon a congestion in the vessels of the brain. The general opinion receives also confirmation from this circumstance, that, in the brain of persons dead of epilepsy, there have been often found tumors and effusions, which, though seemingly not sufficient to produce those diseases which depend on the compression of a considerable portion of the brain, may, however, have been sufficient to compress so many vessels as to render the others upon any occasion of a more than usual turgescence, or impulse of the blood into the vessels of the brain more liable to an over distention.

1296.] These considerations alone might afford foundation for a probable conjecture with respect to the effects of over distention. But the opinion does not rest upon conjecture alone. That it is also founded in fact, appears from hence, that a plethoric state is favorable to epilepsy; and that every occasional turgescence, or unusual impulse of the blood into the vessels of the brain, such as a fit of anger, the heat of the sun, or of a warm chamber, violent exercise, a surfeit, or a fit of intoxication, are frequently the immediate exciting causes of epileptic fits.

1297.] I venture to remark further, that a piece of theory may be admitted as a confirmation of this doctrine. As I have formerly maintained, that a certain fulness and tension of the vessels of the brain is necessary to the support of its ordinary and constant energy, in the distribution of the nervous power; so it must be sufficiently probable, that an over distention of these blood-vessels may be a cause of violent excitement.

1298.] We have now enumerated the several remote or occasional causes of epilepsy, acting by excitement, and acting immediately upon the brain itself. Of the causes acting by excitement, but acting upon other parts of the body, and from thence communicated to the brain, they are all of them impressions producing an exquisite or high degree either of pleasure or pain.

Impressions which produce neither the one nor the other, have hardly any such effects; unless when such impressions

are in a violent degree, and then their operations may be considered as a mode of pain. It is, however, to be remarked, that all strong impressions which are sudden and surprising, or, in other words, unforeseen and unexpected, have frequently the effect of bringing on epileptic fits.

1299.] There are certain impressions made upon different parts of the body, which as they often operate without producing any sensation, so it is uncertain to what head they belong: but it is probable that the greater part of them act by excitement, and therefore fall to be mentioned here. The chief instances are, the teething of infants; worms; acidity or other acrimony in the alimentary canal; calculi in the kidneys; acrid matter in abscesses or ulcers; or acrimony diffused in the mass of blood, as in the case of some contagions.

1300.] Physicians have found no difficulty in comprehending how direct stimulants, of a certain force, may excite the action of the brain, and occasion epilepsy: but they have hitherto taken little notice of certain causes which manifestly weaken the energy of the brain, and act, as I speak, by collapse. These, however, have the effect of exciting the action of the brain in such a manner as to occasion epilepsy. I might upon this subject, speak of the *vis medicatrix naturæ*; and there is a foundation for the term; but, as I do not admit the Stahlian doctrine of an administering soul, I make use of the term only as expressing a fact, and would not employ it with the view of conveying an explanation of the manner in which the powers of collapse mechanically produce their effects. In the mean time, however, I maintain, that there are certain powers of collapse which in effect prove stimulants, and produce epilepsy.

1301.] That there are such powers, which may be termed Indirect Stimulants, I conclude from hence, that several of the causes of epilepsy are such as frequently produce syncope, which we suppose always to depend upon causes weakening the energy of the brain, (1176.) It may give some difficulty to explain, why the same causes sometimes occasion syncope, and sometimes occasion the reaction that appears in epilepsy; and I shall not attempt to explain it: but this, I think, does not prevent my supposing that the operation of these causes is by collapse. That there are such causes producing epilepsy, will, I think, appear very

clearly from the particular examples of them I am now to mention.

1302.] The first to be mentioned, which I suppose to be of this kind, is hemorrhagy, whether spontaneous or artificial. That the same hemorrhagy which produces syncope, often at the same time produces epilepsy, is well known; and from many experiments and observations it appears, that hemorrhagies occurring to such a degree as to prove mortal, seldom do so without first producing epilepsy.

1303.] Another cause acting, as I suppose, by collapse, and therefore sometimes producing syncope, and sometimes epilepsy, is terror; that is, the fear of some great evil suddenly presented. As this produces at the same time a sudden and considerable emotion, (1180.) so it more frequently produces epilepsy than syncope.

1304.] A third cause acting by collapse, and producing epilepsy, is horror; or a strong aversion suddenly raised by a very disagreeable sensation, and frequently arising from a sympathy with the pain or danger of another person. As horror is often a cause of syncope, there can be no doubt of its manner of operating in producing epilepsy; and it may perhaps be explained upon this general principle, That as desire excites action and gives activity, so aversion restrains from action, that is, weakens the energy of the brain; and, therefore, that the higher degrees of aversion may have the effects of producing syncope or epilepsy.

1305.] A fourth set of the causes of epilepsy, which I suppose also to act by collapse, are certain odors, which occasion either syncope or epilepsy; and, with respect to the former, I have given my reasons (1182.) for supposing odors in that case to act rather as disagreeable than as sedative. These reasons will, I think, also apply here; and perhaps the whole affair of odors might be considered as instances of the effect of horror, and therefore belonging to the last head.

1306.] A fifth head of the causes producing epilepsy by collapse, is the operation of many substances considered, and for the most part properly considered, as poisons. Many of these, before they prove mortal, occasion epilepsy. This effect, indeed, may, in some cases be referred to the inflammatory operation which they sometimes discover in the stomach, and other parts of the alimentary canal; but, as the greater part of the vegetable poisons show chiefly a narcotic, or strongly sedative power, it is probably by this power that

they produce epilepsy, and therefore belong to this head of the causes acting by collapse.

1307.] Under the head of the remote causes producing epilepsy, we must now mention that peculiar one whose operation is accompanied with what is called the *Aura Epileptica*. This is a sensation of something moving in some part of the limbs or trunk of the body, and from thence creeping upwards to the head ; and when it arrives there, the person is immediately deprived of sense, and falls into an epileptic fit. This motion is described by the persons feeling it sometimes as a cold vapor, sometimes as a fluid gliding, and sometimes as the sense of a small insect creeping along their body ; and very often they can give no distinct idea of their sensation, otherwise than as in general of something moving along. This sensation might be supposed to arise from some affection of the extremity or other part of a nerve acted upon by some irritating matter ; and that the sensation, therefore, followed the course of such a nerve : but I have never found it following distinctly the course of any nerve ; and it generally seems to pass along the teguments. It has been found in some instances to arise from something pressing upon or irritating a particular nerve, and that sometimes in consequence of contusion or wound : but instances of these are more rare : and the more common consequence of contusions and wounds is a tetanus. This latter effect wounds produce, without giving any sensation of an aura or other kind of motion proceeding from the wounded part to the head ; while on the other hand, the aura producing epilepsy, often arises from a part which had never been affected with wound or contusion, and in which part the nature of the irritation can seldom be discovered. It is natural to imagine that this aura epileptica is an evidence of some irritation or direct stimulus acting in the part, and from thence communicated to the brain, and should therefore have been mentioned among the causes acting by excitement ; but the remarkable difference that occurs in seemingly like causes producing tetanus, give some doubt on this subject.

1308.] Having now enumerated the occasional causes of epilepsy, I proceed to consider the predisponent. As so many of the above mentioned causes act upon certain persons, and not at all upon others, there must be supposed in those persons a predisposition to this disease : but in what this predisposition consists, is not easily to be ascertained.

1309.] As many of the occasional causes are weak impressions, and are applied to most persons with little or no effect, I conclude, that the persons affected by those causes are more easily moved than others ; and therefore that, in this case, a certain mobility gives the predisposition. It will, perhaps, make this matter clearer, to show, in the first place, that there is a greater mobility of constitution in some persons than in others.

1310.] This mobility appears most clearly in the state of the mind. If a person is readily elated by hope, and as readily depressed by fear, and passes easily and quickly from the one state to the other ; and if he is easily pleased, and prone to gaiety, and as easily provoked to anger, and rendered peevish ; if liable, from slight impressions, to strong emotions, but tenacious of none ; this is the boyish temperament *qui colligit ac ponit iram temere, et mutater in horas* ; this is the *varium et mutabile fœmina* ; and, both in the boy and woman, every one perceives and acknowledges a mobility of mind. But this is necessarily connected with an analogous state of the brain ; that is, with a mobility, in respect of every impression, and therefore liable to a ready alteration of excitement and collapse, and of both to a considerable degree.

1311.] There is, therefore, in certain persons, a mobility of constitution, generally derived from the state of original stamina, and more exquisite at a certain period of life than at others ; but sometimes arising from, and particularly modified by, occurrences in the course of life.

1312.] This mobility consists in a greater degree of either sensibility or irritability. These conditions, indeed, physicians consider as so necessarily connected that the constitution with respect to them, may be considered as one and the same : but I am of opinion that they are different ; and that mobility may sometimes depend upon an increase of the one and sometimes on that of the other. If an action excited, is, by repetition rendered more easily excited, and more vigorously performed, I consider this as an increase of irritability only. I go no further on this subject here, as it was only necessary to take notice of the case just now mentioned, for the purpose of explaining why epilepsy, and convulsions of all kinds, by being repeated, are more easily excited, readily become habitual, and are therefore of more difficult cure.

1313.] However we may apply the distinction of sensi-

bility and irritability, it appears that the mobility, which is the predisponent cause of epilepsy, depends more particularly upon debility, or upon a plethoric state of the body.

1314.] What share debility, perhaps by inducing sensibility, has in this matter, appears clearly from hence, that children, women, and other persons of manifest debility, are the most frequent subjects of this disease.

1315.] The effects of a plethoric state in disposing to this disease appears from hence, that plethoric persons are frequently the subjects of it : that it is commonly excited, as I have said above, by the causes of any unusual turgescence of the blood ; and that it has been frequently cured by diminishing the plethoric state of the body.

That a plethoric state of the body should dispose to this disease, we may understand from several considerations. *1st*, Because a plethoric state implies, for the most part a laxity of the solids, and therefore some debility in the moving fibres. *2dly*, Because, in a plethoric state, the tone of the moving fibres depends more upon their tension, than upon their inherent power : and as their tension depends upon the quantity and impetus of the fluids in the blood-vessels, which are very changeable, and by many causes frequently changed, so these frequent changes must give a mobility to the system. *3dly*, Because a plethoric state is favorable to a congestion of blood in the vessels of the brain, it must render these more readily affected by every general turgescence of the blood in the system, and therefore more especially dispose to this disease.

1316.] There is another circumstance of the body disposing to epilepsy, which I cannot so well account for : and that is, the state of sleep : but whether I can account for it or not, it appears, in fact, that this state gives the disposition I speak of ; for, in many persons liable to this disease, the fits happen only in the time of sleep, or immediately upon the person's coming out of it. In a case related by De Haen, it appeared clearly, that the disposition to epilepsy depended entirely upon the state of the body in sleep.*

1317.] Having thus considered the whole of the remote

* This was a very singular case. The chief circumstances in it were, that the boy was more liable to the paroxysms when lying and asleep, than when sitting up and awake. This peculiarity was not observed till the disease had been of some standing ; and, on a more minute attention, the paroxysms were found to be more frequent when the patient was in a peculiar state of sleeping, namely, when he was drowsy, or when he snored in his sleep, the paroxysms were more frequent than when he enjoyed an easy and quiet sleep. A natural, quiet, and easy sleep, was procured by the use of opium ; and, in a short time, the disease was perfectly cured ; but the boy died afterwards, in consequence of a tumor in the groin.

causes of epilepsy, I proceed to treat of its cure, as I have said it is from the consideration of those remote causes only that we can obtain any directions for our practice in this disease.* I begin with observing, that as the disease may be considered as sympathetic or idiopathic, I must treat of these separately, and judge it proper to begin with the former.

1318.] When this disease is truly sympathetic, and depending upon a primary affection in some other part of the body, such as acidity or worms in the alimentary canal, teething, or other similar causes, it is obvious, that such primary affections must be removed for the cure of the epilepsy; but it is not our business here to say how these primary diseases are to be treated.

1319.] There is, however, a peculiar case of sympathetic epilepsy; that is, the case accompanied with the *aura epileptica*, as described in 1307, in which, though we can perceive by the *aura epileptica* arising from a particular part, that there is some affection in that part; yet, as in many such cases we cannot perceive of what nature the affection is, I can only offer the following general directions.

1st, When the part can with safety be entirely destroyed, we should endeavor to do so by cutting it out, or by destroying it by the application of an actual or potential cautery.

2dly, When the part cannot be properly destroyed, that we should endeavor to correct the morbid affection in it by blistering, or by establishing an issue upon the part.

3dly, When these measures cannot be executed, or do not succeed, if the disease seems to proceed from the extremity of a particular nerve which we can easily come at in its course, it will be proper to cut through that nerve, as before proposed on the subject of tetanus.

4thly, When it cannot be perceived that the *aura* arises

* Other causes of Epilepsy are enumerated by medical writers, which the author, for the sake of brevity, left unnoticed. Cases have occurred in which the epilepsy seems to have proceeded from an hereditary taint. Quicksilver, either accidentally or intentionally applied, has been frequently found to produce epilepsy. Persons employed in gilding of metals are often seized with tremblings of the hands, with palsy, and with epilepsy, which can be attributed to nothing else than the absorption of the vapours of mercury used in the operation, which is as follows: the piece of metal to be gilt is first well cleaned and polished; some mercury shaken with aqua-fortis is spread upon it, till the surface appears all over as white as silver; being then heated and retouched in those parts that have escaped the mixture, an amalgama of mercury and gold is laid on it; the heat softening the amalgama, makes it spread more uniformly; and the intervention of the mercury and aqua-fortis makes it adhere more firmly. The piece thus covered with the amalgama is placed on a convenient support, over a charcoal fire; and examined, from time to time, as the mercury evaporates, that, if any deficiencies appear, they may be supplied with a little more of the amalgama before the operation is completed. This process necessarily exposes the artist to the fumes of the mercury.

Van Swieten says that he has seen skulls, in the diploe of which globules of mercury manifestly appeared; and he thinks it probable that the mercury may possibly be thrown out into the cavities of the brain itself, and produce much mischief. Mercury, when excessive, has been enumerated among the causes of epilepsy by Boerhaave, but on what authority seems uncertain.

from any precise place or point, so as to direct to the above-mentioned operations ; but, at the same time, we can perceive its progress along the limb ; it frequently happens that the epilepsy can be prevented by a ligature applied upon the limb, above the part from which the *aura* arises ; and this is always proper to be done, both because the preventing a fit breaks the habit of the disease, and because the frequent compression renders the nerves less fit to propagate the *aura*.

1320.] The cure of idiopathic epilepsy, as I have said above, is to be directed by our knowledge of the remote causes. There are therefore two general indications to be formed. The first is, to avoid the occasional causes ; and the second is, to remove or correct the predisponent.

This method, however, is not always purely palliative ; as in many cases the predisponent may be considered as the only proximate cause, so our second indication may be often considered as properly curative.

1321.] From the enumeration given above, it will be manifest, that for the most part the occasional causes, so far as they are in our power, need only to be known, in order to be avoided ; and the means of doing this will be sufficiently obvious. I shall here, therefore, offer only a few remarks.

1322.] One of the most frequent of the occasional causes is that of over distention, (1314.) which, so far as it depends upon a plethoric state of the system, I shall say hereafter how it is to be avoided. But as, not only in the plethoric, but in every moveable constitution, occasional turgescence is a frequent means of exciting epilepsy, the avoiding therefore of such turgescence is what ought to be most constantly the object of attention to persons liable to epilepsy.

1323.] Another of the most frequent exciting causes of this disease are, all strong impressions suddenly made upon the senses ; for as such impressions, in moveable constitutions, break in upon the usual force, velocity, and order of the motions of the nervous system, they thereby readily produce epilepsy. Such impressions therefore, and especially those which are suited to excite any emotion or passion of the mind, are to be most carefully guarded against by persons liable to epilepsy.

1324.] In many cases of epilepsy, where the predisponent cause cannot be corrected or removed, the recurrence

of the disease can only be prevented, by the strictest attention to avoid the occasional; and as the disease is often confirmed by repetition and habit, so the avoiding the frequent recurrence of it is of the utmost importance toward its cure.

These are the few remarks I have to offer with respect to the occasional causes; and must now observe, that, for the most part, the complete, or, as it is called, the Radical Cure, is only to be obtained by removing or correcting the predisponent cause.

1325.] I have said above, that the predisponent cause of epilepsy is a certain mobility of the sensorium; and that this depends upon a plethoric state of the system, or upon a certain state of the debility in it.

1326.] How the plethoric state of the system is to be corrected, I have treated of fully above in (781. *et. seq.*) and I need not repeat it here. It will be enough to say, that it is chiefly to be done by a proper management of exercise and diet; and, with respect to the latter, it is particularly to be observed here, that an abstemious course has been frequently found to be the most certain means of curing epilepsy.

1327.] Considering the nature of the matter poured out by issues, these may be supposed to be a constant means of obviating the plethoric state of the system; and it is, perhaps, therefore, that they have been so often found useful in epilepsy. Possibly, also, as an open issue may be a means of determining occasional turgescences to such places, and therefore of diverting them in some measure from their action upon the brain; so also, in this manner, issues may be useful in epilepsy.

1328.] It might be supposed that blood-letting would be the most effectual means of correcting the plethoric state of the system; and such it certainly proves when the plethoric state has become considerable, and immediately threatens morbid effects. It is therefore, in such circumstances, proper and necessary: but as we have said above, that blood-letting is not the proper means of obviating a recurrence of the plethoric state, and, on the contrary, is often the means of favoring it; so it is not a remedy advisable in every circumstance of epilepsy. There is however, a case of epilepsy in which there is a periodical or occasional recurrence of the fulness and turgescence of the sanguiferous system, giving occasion to a recurrence of the disease. In such cases, when the means of preventing ple-

thora have been neglected, or may have proved ineffectual, it is absolutely necessary for the practitioner to watch the returns of these turgescences, and to obviate their effects by the only certain means of doing it, that is, by a large blood-letting.

1329.] The second cause of mobility which we have assigned, is a state of debility. If this is owing, as it frequently is, to original conformation, it is perhaps not possible to cure it; but when it has been brought on in the course of life, it possibly may admit of being mended; and, in either case, much may be done to obviate and prevent its effects.

1330.] The means of correcting debility, so far as it can be done, are, The person's being much in cool air; the frequent use of cold bathing; the use of exercise, adapted to the strength and habits of the person; and, perhaps, the use of astringent and tonic medicines.

These remedies are suited to strengthen the inherent power of the solids or moving fibres: but as the strength of these depends also upon their tension, so when debility has proceeded from inanition, the strength may be restored, by restoring the fulness and tension of the vessels by a nourishing diet; and we have had instances of the propriety and success of such a practice.

1331.] The means of obviating the effects of debility, and of the mobility depending upon it, are the use of tonic and antispasmodic remedies.

The tonics are, fear, or some degree of terror; astringents; certain vegetable and metallic tonics; and cold-bathing.

1332.] That fear, or some degree of terror, may be of use in preventing epilepsy, we have a remarkable proof in Boerhaave's cure of the epilepsy, which happened in the Orphan-house at Haerlem. See Kauu Boerhaave's treatise, entitled *Impetum Faciens*, § 406. And we have met with several other instances of the same.

As the operation of horror is in many respects analogous to that of terror, several seemingly superstitious remedies have been employed for the cure of epilepsy; and, if they have ever been successful, I think it must be imputed to the horror they had inspired.*

* Drinking a draught of the blood of a gladiator just killed; drinking a draught of water with a toad at the bottom of the jug; eating a piece of human liver, or the marrow of the bones of the leg of a malefactor; powder of the human skull; or the moss that grows on it; with a variety of such abominable remedies, were formerly in great repute, and indeed some of them are still retained in several foreign Pharmacopœias.

1333.] Of the astringent medicines used for the cure of epilepsy the most celebrated is the *viscus quercinus*, which, when given in large quantities, may possibly be useful; but I believe it was more especially so in ancient times, when it was an object of superstition. In the few instances in which I have seen it employed it did not prove of any effect.*

1334.] Among the vegetable tonics, the bitters are to be reckoned; and it is by this quality that I suppose the orange-tree leaves to have been useful: but they are not always so.

1335.] The vegetable tonic, which from its use in analogous cases is the most promising, is the Peruvian bark; this, upon occasion, has been useful, but has also often failed. It is especially adapted to those epilepsies which recur at certain periods, and which are at the same time without the recurrence of any plethoric state or turgescence of the blood; and in such periodical cases, if the bark is employed some time before the expected recurrence, it may be useful; but it must be given in large quantity, and as near to the time of the expected return as possible.

1336.] The metallic tonics seem to be more powerful than the vegetable, and a great variety of the former have been employed.

Even arsenic has been employed in the cure of epilepsy; and its use in intermittent fevers gives an analogy in its favor.

Preparations of tin have been formerly recommended in the cure of epilepsy, and in the cure of the analogous disease of hysteria; and several considerations render the virtues of tin, with respect to these diseases, probable: but I have had no experience of its use in such cases.

A much safer metallic tonic is to be found in the preparations of iron; and we have seen some of them employed in the cure of epilepsy, but have never found them to be effectual. This, however, I think, may be imputed to their not having been always employed in the circumstances of the disease, and in the quantities of the medicine, that were proper and necessary.†

1337.] Of the metallic tonics, the most celebrated and the most frequently employed is copper, under various preparation. What preparation of it may be the most effectual,

* The dose of it was from half a drachm to a drachm in powder, or about an ounce in infusion.

† The method of using iron was described in a note on article 576.

I dare not determine ; but of late the *cuprum ammoniacum* has been frequently found successful.*

1338.] Lately the flowers of zinc have been recommended by a great authority as useful in all convulsive disorders ; but in cases of epilepsy, I have not hitherto found that medicine useful.†

1339.] There have been of late some instances of the cure of epilepsy by the accidental use of mercury ; and if the late accounts of the cure of tetanus by this remedy are confirmed, it will allow us to think that the same may be adapted also to the cure of certain cases of epilepsy.

1340.] With respect to the employment of any of the above mentioned tonics in this disease, it must be observed, that in all cases where the disease depends upon a constant or occasional plethoric state of the system, these remedies are likely to be ineffectual ; and if sufficient evacuations are not made at the same time, these medicines are likely to be very hurtful.

1341.] The other set of medicines which we have mentioned as suited to obviate the effects of the too great mobility of the system, are the medicines named *antispasmodics*. Of these there is a long list in the writers on the *Materia Medica*, and by these authors recommended for the cure of epilepsy. The greater part, however, of those taken from the vegetable kingdom, are manifestly inert and insignificant.‡ Even the root of the wild valerian hardly supports its credit.

1342.] Certain substances taken from the animal kingdom seem to be much more powerful : and of these the chief, and seemingly the most powerful, is musk ; which employed in its genuine state, and in due quantity, has often been an effectual remedy.§

* This was a favorite remedy of the author's. He first introduced it into practice in this country, and the preparation of it was inserted in the *Edinburgh Pharmacopœia*.

† It is employed by beginning with small doses of half a grain, and increasing them gradually to as much as the stomach will bear. It is, however, like all preparations of copper, a very dangerous medicine, and ought to be used with caution.

‡ The great authority by which the flowers of zinc were recommended was Gaubius. It is as dangerous a medicine as the *cuprum ammoniacum*, and must be used with the same caution.

§ This is certainly true ; but it must be acknowledged that some of them are manifestly active and useful, as the *asafoetida*, *sagapenum*, and other resinous gums. The *pilulæ gummosæ* of the *Pharmacopœias* are good formulae for these nauseous medicines ; and their being reputed inefficacious and insignificant seems to have arisen from their not having been given in sufficiently large doses. They may be given with safety to the quantity of two drachms in a day, in repeated doses of twenty or thirty grains each ; and, if they should happen to purge, this inconvenience may be prevented, by adding a quarter or half a grain of opium to each dose of the pills, or taking ten drops of *ludanum* after each dose, as occasion may require.

¶ Musk is more effectual when given in substance than in any preparation that has been attempted ; it is given in doses of from ten to thirty grains, and frequently repeated. It may be made into a bolus, as in the following formula :

Rx. Mosch. gr. xv.

It is probable also, that the *oleum animale*, as it has been named, when in its purest state, and exhibited at a proper time, may be an effectual remedy.*

1343.] In many diseases, the most powerful antispasmodic is certainly opium; but the propriety of its use in epilepsy has been disputed among physicians. When the disease depends upon a plethoric state in which bleeding may be necessary, the employment of opium is likely to be very hurtful: but, when there is no plethoric or inflammatory state present, and the disease seems to depend upon irritation or upon increased irritability, opium is likely to prove the most certain remedy.† Whatever effects in this and other convulsive disorders have been attributed to the hyoseyamus, must probably be attributed to its possessing a narcotic power similar to that of opium.

1344.] With respect to the use of antispasmodics, it is to be observed, that they are always most useful, and perhaps only useful, when employed at a time when epileptic fits are frequently recurring, or near to the times of the accession of fits which recur after considerable intervals.

1345.] On the subject of the cure of epilepsy, I have only to add, that as the disease in many cases is continued by the power of habit only, and that in all cases habit has a great share in increasing mobility, and therefore in continuing this disease; so the breaking in upon such habit, and changing the whole habits of the system, is likely to be a powerful remedy in epilepsy. Accordingly, a considerable change of climate, diet, and other circumstances in the manner of life, has often proved a cure of this disease.‡

1346.] After treating of epilepsy, I might here treat of particular convulsions, which are to be distinguished from

Tere in mortar. marmor. cum
Sacch. alb. ʒi. ; et adde
Confect. cardiac. ʒss.
M. f. bolus.

* This bolus may be repeated three or four times a-day.

* The dose of this oil is from twenty to thirty drops; it is, however, seldom used.

† In those cases, in which some peculiar symptoms indicate the approach of the fit, opium taken in a large dose has sometimes prevented it altogether; but most commonly, however, such a dose greatly lessens its violence. Two grains of opium in substance, or sixty or seventy drops of laudanum, are large doses.

‡ After all that has been said on this disease, we must acknowledge that we know but little of its true nature, and, consequently, no certain method of cure can be given. It has baffled the skill of physicians from the earliest ages of physic, and still remains to be one of those many diseases which we cannot certainly cure. Some species of it, indeed, are certainly curable, but these are few, and such only as are symptomatic, or arise from peculiar mechanical irritations. Experience has moreover shown us, that the disease often exists without any apparent irritation, and without any cause observable on dissection: Much room is therefore left for future investigations on this dark subject; and we must at present content ourselves with the hopes that time will unfold what human ingenuity has not yet been capable of effecting.

epilepsy by their being more partial : that is, affecting certain parts of the body only, and by their not being attended with a loss of sense, nor ending in such a comatose state as epilepsy always does.

1347.] Of such convulsive affections many different instances have been observed and recorded by physicians. But many of these have been manifestly sympathetic affections, to be cured only by curing the primary disease upon which they depend, and therefore not to be treated of here: or, though they are such as cannot be referred to another disease, as many of them however have not any specific character with which they occur in different persons, I must therefore leave them to be treated upon the general principles I have laid down with respect to epilepsy, or shall lay down with respect to the following convulsive disorder ; which, as having very constantly in different persons a peculiar character, I think necessary to treat of more particularly.

CHAPTER III.

OF THE CHOREA OR DANCE OF ST. VITUS.

1348.] **T**HIS disease affects both sexes, and almost only young persons. It generally happens from the age of ten to that of fourteen years.* It comes on always before the age of puberty, and rarely continues beyond that period.

1349.] It is chiefly marked by convulsive motions, somewhat varied in different persons, but nearly of one kind in all ; affecting the leg and arm on the same side, and generally on one side only.

1350.] These convulsive motions commonly first affect the leg and foot. Though the limb be at rest, the foot is often agitated by convulsive motions, turning it alternately outwards and inwards. When walking is attempted, the affected leg is seldom lifted as usual in walking, but is dragged along as if the whole limb were paralytic ; and, when it is attempted to be lifted, this motion is unsteadily performed, the limb becoming agitated by irregular convulsive motions.

1351.] The arm of the same side is generally affected at

* I have seen it in a robust man of forty-two. This patient, after various ineffectual remedies had been used, was cured by strong electrical shocks directed through the whole body.

the same time ; and, even when no voluntary motion is attempted, the arm is frequently agitated with various convulsive motions. But especially when voluntary motions are attempted, these are not properly executed, but are variously hurried or interrupted by convulsive motions in a direction contrary to that intended. The most common instance of this is in the persons attempting to carry a cup of liquor to his mouth, when it is only after repeated efforts, interrupted by frequent convulsive retractions and deviations, that the cup can be carried to the mouth.

1352.] It appears to me, that the will often yields to these convulsive motions, as to a propensity, and thereby they are often increased, while the person affected seems to be pleased with increasing the surprise and amusement which his motions occasion in the bystanders.

1353.] In this disease the mind is often affected with some degree of fatuity ; and often shows the same varied, desultory, and causeless emotions which occur in hysteria.

1354.] These are the most common circumstances of this disease ; but at times, and in different persons, it is varied by some difference in the convulsive motions, particularly by these affecting the head and trunk of the body. As in this disease there seem to be propensities to motion, so various fits of leaping and running occur in the persons affected ; and there have been instances of this disease, consisting of such convulsive motions, appearing as an epidemic in a certain corner of the country. In such instances, persons of different ages are affected, and may seem to make an exception to the general rule above laid down ; but still the persons are, for the most part, the young of both sexes, and of the more manifestly moveable constitutions.

1355.] The method of curing this disease has been variously proposed. Dr. Sydenham proposed to cure it by alternate bleeding and purging. In some plethoric habits I have found some bleeding useful ; but in many cases I have found repeated evacuations, especially by bleeding, very hurtful.

In many cases, I have found the disease, in spite of remedies of all kinds, continue for many months ; but I have also found it often readily yield to tonic remedies, such as the Peruvian bark, and chalybeates.

The late Dr. De Haen found several persons laboring under this disease cured by the application of electricity.

SECTION II.

Of the Spasmodic Affections of the Vital Functions.

CHAPTER IV.*

OF THE PALPITATION OF THE HEART.

1356.] **T**HE motion thus named is a contraction or systole of the heart, that is performed with more rapidity, and generally also with more force than usual, and when at the same time the heart strikes with more than usual violence against the inside of the ribs, producing often a considerable sound.

1357.] This motion, or palpitation, is occasioned by a great variety of causes, which have been recited with great pains by Mr. Senac and others ; whom, however, I cannot follow in all the particulars with sufficient discernment, and therefore shall here only attempt to refer all the several cases of this disease to a few general heads.

1358.] The first is of those arising from the application of the usual stimulus to the heart's contraction ; that is, the influx of the venous blood into its cavities, being made with more velocity, and therefore, in the same time, in greater quantity than usual. It seems to be in this manner that violent exercise occasions palpitation.

1359.] A second head of the cases of palpitation, is of those arising from any resistance given to the free and entire evacuation of the ventricles of the heart. Thus a ligature made upon the aorta occasions palpitations of the most violent kind. Similar resistances, either in the aorta or pulmonary artery, may be readily imagined ; and such have been often found in the dead bodies of persons who, during life, had been much affected with palpitations.

To this head are to be referred all those cases of palpitation arising from causes producing an accumulation of blood in the great vessels near to the heart.

1360.] A third head of the cases of palpitation, is of those arising from a more violent and rapid influx of the nervous power into the muscular fibres of the heart. It is in this manner that I suppose various causes acting in the brain,

* Though I have thought it proper to divide this book into sections, I think it necessary, for the convenience of references, to number the chapters from the beginning. *Author.*

and particularly certain emotions of the mind occasion palpitation.

1361.] A fourth head of the cases of palpitation, is of those arising from causes producing a weakness in the action of the heart, by diminishing the energy of the brain with respect to it. That such causes operate in producing palpitation, I presume from hence, that all the several causes mentioned above (1177. *et seq.*) as in this manner producing syncope, do often produce palpitation. It is on this ground that these two diseases are affections frequently occurring in the same person, as the same causes may occasion the one or the other, according to the force of the cause and mobility of the person acted upon. It seems to be a law of the human economy, that a degree of debility occurring in any function, often produces a more vigorous exertion of the same, or at least an effort towards it, and that commonly in a convulsive manner.

I apprehend it to be the convulsive action, frequently ending in some degree of a spasm, that gives occasion to the intermittent pulse so frequently accompanying palpitation.

1362.] A fifth head of the cases of palpitation may perhaps be of those arising from a peculiar irritability or mobility of the heart. This, indeed, may be considered as a predisponent cause only, giving occasion to the action of the greater part of the causes recited above. But it is proper to observe, that this predisposition is often the chief part of the remote cause; insomuch that many of the causes producing palpitation would not have this effect but in persons peculiarly predisposed. This head, therefore, of the cases of palpitation, often requires to be distinguished from all the rest.

1363.] After thus marking the several cases and causes of palpitation, I think it necessary, with a view to the cure of this disease, to observe, that the several causes of it may be again reduced to two heads. The first is, of those consisting in, or depending upon, certain organic affections of the heart itself, or of the great vessels immediately connected with it. The second is, of those consisting in, or depending upon, certain affections subsisting and acting in other parts of the body, and acting either by the force of the cause, or in consequence of the mobility of the heart.

1364.] With respect to the cases depending upon the first set of causes, I must repeat here what I said with respect to the like cases of syncope, that I do not know any

means of curing them. They, indeed, admit of some palliation, *first*, by avoiding every circumstance that may hurry the circulation of the blood ; and, *secondly*, by every means of avoiding a plethoric state of the system, or any occasional turgescence of the blood. In many of these cases, blood-letting may give a temporary relief : but in so far as debility and mobility are concerned, in such cases this remedy is likely to do harm.

1365.] With respect to the cases depending upon the other set of causes, they may be various, and require very different measures ; but I can here say in general, that these cases may be considered as of two kinds ; one depending upon primary affections in other parts of the body, and acting by the force of the particular causes ; and another depending upon a state of mobility in the heart itself. In the first of these, it is obvious, that the cure of palpitation must be obtained by curing the primary affection ; which is not to be treated of here. In the second, the cure must be obtained, partly by diligently avoiding the occasional causes, partly and chiefly by correcting the mobility of the system, and of the heart in particular ; for doing which we have treated of the proper means elsewhere.

CHAPTER V.

OF DYSPNŒA, OR DIFFICULT BREATHING.

1366.] **T**HE exercise of respiration, and the organs of it, have so constant and considerable a connection with almost the whole of the other functions and parts of the human body, that upon almost every occasion of disease, respiration must be effected. Accordingly, some difficulty and disorder in this function, are in fact symptoms very generally accompanying disease.

1367.] Upon this account, the symptom of difficult breathing deserves a chief place and an ample consideration in the general system of Pathology ; but what share of consideration it ought to have in a treatise of Practice, I find it difficult to determine.

1368.] On this subject, it is in the first place, necessary to distinguish between the symptomatic and idiopathic affections ; that is, between those difficulties of breathing which are symptoms only of a more general affection, or of

a disease subsisting primarily in other parts than the organs of respiration, and that difficulty of breathing which depends upon a primary affection of the lungs themselves. The various cases of symptomatic dyspnœa I have taken pains to enumerate in my Methodical Nosology, and it will be obvious they are such as cannot be taken notice of here.

1369.] In my Nosology I have also taken pains to point out and enumerate the proper, or at least the greater part of the proper, idiopathic cases of the dyspnœa: but from that enumeration it will, I think, readily appear, that few, and indeed hardly any, of these cases, will admit or require much of our notice in this place.

1370.] The Dyspnœa *Sicca*,* *species 2d*, the Dyspnœa *Aerea*,† *sp. 3d*, the Dyspnœa *Terrea*,‡ *sp. 4th*, and Dyspnœa *Thoracica*,§ *sp. 7th*, are some of them with difficulty known, and are all of them diseases which in my opinion do not admit of cure. All, therefore, that can be said concerning them here is, that they may admit of some palliation; and this, I think, is to be obtained chiefly by avoiding a plethoric state of the lungs,|| and every circumstance that may hurry respiration.

1371.] Of the Dyspnœa *Extrinseca*,¶ *sp. 8th*, I can say no more, but that these external causes marked in the Nosology, and perhaps some others that might have like effects, are to be carefully avoided; or, when they have been applied, and their effects have taken place, the disease is to be palliated by the means mentioned in the last paragraph.

1372.] The other species, though enumerated as idiopathic, can hardly be considered as such, or as requiring to be treated of here.

The Dyspnœa *Catarrhalis*,** *sp. 1st*, may be considered as a species of catarrh, and is pretty certainly to be cured by the same remedies as that species of catarrh which de-

* The definition, which the author gives of this species in his Nosology, is *Dyspnœa cum tussi plerumque sicca*. It arises from various causes, some of which are extremely difficult, if not impossible, to be discovered.

† The definition of this species is, *Dyspnœa a minima quavis tempestatum mutatione aucta*.

‡ It is defined *Dyspnœa cum tussi materiem terream vel calculosam ejiciente*. This is sometimes the expulsion of a gouty matter.

§ The definition of this species is, *Dyspnœa a partibus thoracem cingentibus laesis, vel male conformatis*.

|| This intention is most speedily obtained by occasioning bleeding.

¶ It is defined *Dyspnœa a causis externis manifestis*. These causes are various, as exposure to dusts of different kinds, to metallic fumes, to vitiated air, to vapours of different kinds, &c.

** It is defined, *Dyspnœa cum tussi frequente mucum viscidum copiosum ejiciente*.

pende rather upon the increased afflux of mucus to the bronchiæ, than upon any inflammatory state in them.*

The Dyspnœa *Aquosa*,† *sp. 5th*, is certainly to be considered as a species of dropsy, and is to be treated by the same remedies as the other species of that disease.

The Dyspnœa *Pinguetudinosa*,‡ *sp. 6th*, is in like manner to be considered as a symptom or local effect of the Polysarcia, and is only to be cured by correcting the general fault of the system.§

1373.] From this view of those idiopathic cases of dyspnœa, which are perhaps all I could properly arrange under this title, it will readily appear that there is little room for treating of them here : but there is still one case of difficult breathing, which has been properly distinguished from every other under the title of *Asthma*; and as it deserves our particular attention, I shall here separately consider it.

CHAPTER VI.

OF ASTHMA.

1374.] **T**HE term of asthma has been commonly applied by the vulgar, and even by many writers on the Practice of Physic, to every case of difficult breathing, that is, to every species of Dyspnœa. The Methodical Nosologists, also, have distinguished Asthma from Dyspnœa chiefly, and almost solely, by the former being the same affection with the latter, but in a higher degree. Neither of these applications of the term seems to have been correct or proper. I am of opinion, that the term asthma may be most properly applied, and should be confined, to a case of difficult breathing that has peculiar symptoms, and depends upon a peculiar proximate cause, which I hope to assign with sufficient certainty. It is this disease I am now to treat of, and, and it is nearly what Practical Writers have generally distinguished from the other cases of difficult breathing, by the title of Spasmodic Asthma, or of *Asthma convulsivum*; although, by

* The remedies for this purpose are, emetics, sudorifics, and expectorants; formulæ of which may be seen in the notes on article 1065.

† It is defined, *Dyspnœa cum urina parca, et œdemata pedum, sine fluctuatione in pectore, vel aliis characteristicis hydrothoracis signis.*

‡ It is defined, *Dyspnœa in hominibus valde obesis.*

§ A low diet, sufficient exercise, sweating, and brisk purges, will soon have the desired effect; and the disease may be prevented by abstemious living.

not distinguishing it with sufficient accuracy from the other cases of Dyspnœa, they have introduced a great deal of confusion into their treatises on this subject.

1375.] The disease I am to treat of, or the Asthma to be strictly so called, is often a hereditary disease. It* seldom appears very early in life, and hardly till the time of puberty, or after it. It affects both sexes, but most frequently the male. I have not observed it to be more frequent in one kind of temperament than in another; and it does not seem to depend upon any general temperament of the whole body, but upon a particular constitution of the lungs alone. It frequently attacks persons of a full habit: but it hardly ever continues to be repeated for some length of time without occasioning an emaciation of the whole body.

1376.] The attacks of this disease are generally in the night-time, or towards the approach of night; but there are also some instances of their coming on in the course of the day. At whatever time they come on, it is for the most part suddenly, with a sense of tightness and stricture across the breast, and a sense of straitness in the lungs impeding inspiration. The person thus attacked, if in a horizontal situation is immediately obliged to get into somewhat of an erect posture, and requires a free and cool air. The difficulty of breathing goes on for some time increasing; and both inspiration and expiration are performed slowly, and with a wheezing noise. In violent fits, speaking is difficult and uneasy. There is often some propensity to coughing, but it can hardly be executed.

1377.] These symptoms often continue for many hours together, and particularly from midnight till the morning is far advanced. Then commonly a remission takes place by degrees; the breathing becomes less laborious and more full, so that the person can speak and cough with more ease; and, if the cough brings up some mucus, the remission becomes immediately more considerable, and the person falls into a much wished for sleep.

1378.] During these fits the pulse often continues in its natural state; but in some persons the fits are attended with a frequency of pulse, and with some heat and thirst, as marks of some degree of fever. If urine be voided at the beginning of a fit, it is commonly in considerable quantity, and with little color or odor; but, after the fit is over, the urine voided is in the ordinary quantity, of a high co-

* This description of the disease under consideration is excellent.

lor, and sometime deposits a sediment. In some persons, during the fit, the face is a little flushed and turgid ; but more commonly it is somewhat pale and shrunk.

1379.] After some sleep in the morning, the patient, for the rest of the day, continues to have more free and easy breathing, but it is seldom entirely such. He still feels some tightness across his breast, cannot breathe easily in a horizontal posture, and can hardly bear any motion of his body, without having his breathing rendered more difficult and uneasy. In the afternoon he has an unusual flatulency of his stomach, and an unusual drowsiness ; and, very frequently, these symptoms precede the first attacks of the disease. But, whether these symptoms appear or not, the difficulty of breathing returns towards the evening ; and then sometimes gradually increases, till it becomes as violent as in the night before : or if, during the day, the difficulty of breathing has been moderate, and the person got some sleep in the first part of the night, he is, however, waked about midnight, or at sometime between midnight and two o'clock in the morning ; and is then suddenly seized with a fit of difficult breathing, which runs the same course as the night before.

1380.] In this manner fits return for several nights successively : but generally, after some nights passed in this way, the fits suffer more considerable remissions. This especially happens when the remissions are attended with a more copious expectoration in the mornings, and that this continues from time to time throughout the day. In these circumstances, asthmatics, for a long time after, have not only more easy days, but enjoy also nights of entire sleep, without the recurrence of the disease.

1381.] When this disease, however, has once taken place in the manner above described, it is ready to return at times for the whole of life after. These returns, however, happen with different circumstances in different persons.

1382.] In some persons the fits are readily excited by external heat, whether of the weather or of a warm chamber, and particularly by warm bathing. In such persons fits are more frequent in summer, and particularly during the dog-days, than at other colder seasons. The same persons are also readily affected by changes of the weather ; especially by sudden changes made from a colder to a warmer, or what is commonly the same thing, from a heavier to a lighter atmosphere. The same persons are also affected

by every circumstance straitening the capacity of the thorax, as by any ligature made, or even by a plaister laid upon it ; and a like effect happens from any increased bulk of the stomach, either by a full meal, or by air collected in it. They are likewise much affected by exercise, or whatever else can hurry the circulation of the blood.

1383.] As asthmatic fits seem thus to depend upon some fulness of the vessels of the lungs, it is probable than an obstruction of perspiration, and the blood being less determined to the surface of the body, may favor an accumulation in the lungs, and thereby be a means of exciting asthma. This seems to be the case of those asthmatics who have fits most frequently in the winter season, and who have commonly more of a catarrhal affection accompanying the asthma ; which therefore occurs more frequently in winter, and more manifestly from the application of cold.

1384.] Beside these cases of asthma excited by heat or cold, there are others, in which the fits are especially excited by powers applied to the nervous system ; as by passions of the mind, by particular odors, and by irritations of smoke and dust. That this disease is an affection of the nervous system, and depending upon a mobility of the moving fibres of the lungs, appears pretty clearly from its being frequently attended with other spasmodic affections depending upon mobility ; such as hysteria, hypochondriasis, dyspepsia, and atonic gout.

1385.] From the whole of the history of asthma now delivered, I think it will readily appear, that the proximate cause of this disease is a preternatural, and in some measure a spasmodic constriction of the muscular fibres of the bronchiæ ; which not only prevents the dilatation of the bronchiæ necessary to a free and full inspiration, but gives also a rigidity which prevents a full and free expiration. This preternatural constriction, like many other convulsive and spasmodic affections, is readily excited by a turgescence of the blood, or other cause of any unusual fulness and distention of the vessels of the lungs.

1386.] This disease, as coming by fits, may be generally distinguished from most other species of dyspnœa, whose causes being more constantly applied, produce therefore a more constant difficulty of breathing. There may, however, be some fallacy in this matter, as some of these causes may be liable to have abatements and intensities, whereby the dyspnœa produced by them may seem to come by fits ;

but I believe it is seldom that such fits put on the appearance of the genuine asthmatic fits described above. Perhaps, however, there is still another case that may give more difficulty ; and that is when several of the causes, which we have assigned as causes of several of the species of difficult breathing referred to the genus of *Dyspnœa*, may have the effect of exciting a genuine asthmatic fit. Whether this can happen to any but the peculiarly predisposed to asthma, I am uncertain ; and therefore, whether in any such cases, the asthma may be considered as symptomatic ; or if, in all such cases, the asthma may not still be considered and treated as an idiopathic disease.

1387.] The asthma, though often threatening immediate death, seldom occasions it, and many persons have lived long under this disease. In many cases, however, it does prove fatal ; sometimes very quickly, and perhaps always at length. In some young persons it has ended soon, by occasioning a *phthisis pulmonalis*. After a long continuance, it often ends in a *hydrothorax* ; and commonly, by occasioning some aneurism of the heart or great vessels, it thereby proves fatal.

1388.] As it is seldom that an asthma has been entirely cured ; I therefore cannot propose any method of cure which experience has approved as generally successful. But the disease admits of alleviation in several respects from the use of remedies ; and my business now shall be chiefly to offer some remarks upon the choice and use of the remedies which have been commonly employed in cases of asthma.

1389.] As the danger of an asthmatic fit arises chiefly from the difficult transmission of the blood through the vessels of the lungs, threatening suffocation ; so the most probable means of obviating this seems to be blood-letting ; and therefore, in all violent fits, practitioners have had recourse to this remedy. In first attacks, and especially in young and plethoric persons, blood-letting may be very necessary, and is commonly allowable. But it is also evident, that, under the frequent recurrence of fits, blood-letting cannot be frequently repeated without exhausting and weakening the patient too much. It is further to be observed that blood-letting is not so necessary as might be imagined, as the passage of the blood through the lungs is not so much interrupted as has been commonly supposed. This I particularly conclude from hence, that, instead of the suffusion of face, which is the usual effect of such interrup-

tion, the face, in asthmatic fits, is often shrunk and pale. I conclude the same also from this, that, in asthmatic fits, blood-letting does not commonly give so much relief as, upon the contrary supposition, might be expected.

1390.] As I have alledged above, that a turgescence of the blood is frequently the exciting cause of asthmatic fits, so it might be supposed, that a plethoric state of the system might have a great share in producing a turgescence of the blood in the lungs; and especially, therefore, that blood-letting might be a proper remedy in asthma. I allow it to be so in the first attacks of the disease: but as the disease, by continuing, generally takes off the plethoric state of the system; so, after the disease has continued for some time, I alledge that blood-letting becomes less and less necessary.

1391.] Upon the supposition of asthmatics being in a plethoric state, purging might be supposed to prove a remedy in this disease: but, both because the supposition is not commonly well founded, and because purging is seldom found to relieve the vessels of the thorax, this remedy has not appeared to be well suited to asthmatics; and large purging has always been found to do much harm. But as asthmatics are always hurt by the stagnation and accumulation of matters in the alimentary canal, so costiveness must be avoided, and an open belly proves useful. In the time of fits, the employment of emollient and moderately relaxative glysters* has been found to give considerable relief.

1392.] As a flatulency of the stomach, and other symptoms of indigestion, are frequent attendants of asthma, and very troublesome to asthmatics; so, both for removing these symptoms, and for taking off all determination to the lungs, the frequent use of gentle vomits† is proper in this disease. In certain cases, where a fit was expected to come on in the course of the night, a vomit given in the evening has frequently seemed to prevent it.

1393.] Blistering between the shoulders, or upon the breast, has been frequently employed to relieve asthmatics; but in the pure spasmodic asthma we treat of here, I have rarely found blisters useful, either in preventing or relieving fits.

1394.] Issues are certainly useful in obviating plethora;

* A glyster of milk, with a little salt, is generally sufficient. The costiveness may be removed by mucilaginous laxatives of the milder kind, as manna, cassia, &c. or by a proper attention to diet, especially by using the pulps of particular fruits, as prunes or raisins boiled in barley-water; roasted apples eaten with brown sugar, &c.

† Vomits ought, in these cases, to be mild. Some formulæ of them are given in one of the notes on article 185.

but as such indications seldom arise in cases of asthma, so issues have been seldom found useful in this disease.

1395.] As asthmatic fits are so frequently excited by a turbulence of the blood, so the obviating and allaying of this by acids and neutral salts, seems to have been at all times the object of practitioners. See FLOYER *on the Asthma*.

1396.] Although a plethoric state of the system may seem to dispose to asthma, and the occasional turbulence of the blood may seem to be frequently the exciting cause of the fits; yet it is evident, that the disease must have arisen chiefly from a peculiar constitution in the moving fibres of the bronchiæ, disposing them upon various occasions to fall into a spasmodic constriction; and therefore, that the entire cure of the disease can only be expected from the correcting of that predisposition, or from correcting the preternatural mobility or irritability of the lungs in that respect.

1397.] In cases wherein this predisposition depends upon original conformation, the cure must be difficult, and perhaps impossible; but it may perhaps be moderated by the use of antispasmodics. Upon this footing, various remedies of that kind have been commonly employed, and particularly the fetid gums; but we have not found them of any considerable efficacy, and have observed them to be sometimes hurtful by their heating too much. Some other antispasmodics which might be supposed powerful, such as musk, have not been properly tried. The vitriolic ether has been found to give relief, but its effects are not lasting.

1398.] As in other spasmodic affections, so in this, the most certain and powerful antispasmodic is opium.* I have often found it effectual, and generally safe; and if there have arisen doubts with respect to its safety, I believe they have arisen from not distinguishing between certain plethoric and inflammatory cases of dyspnœa, improperly named Asthma, and the genuine spasmodic asthma we treat of here.

1399.] As in many cases this disease depends upon a predisposition which cannot be corrected by our art, so in such cases the patient can only escape the disease by avoid-

* The great efficacy of opium, in cases of spasmodic asthma, is fully confirmed by experience. It ought to be given in large doses, but not often repeated in the day. It seems to be most useful when given occasionally to allay the violence of the fit, or to prevent its accession. Thus, forty drops of laudanum have been frequently found to relieve the symptoms when the fit is violent; or, when taken at the approach of the fit, to have wholly suppressed it, or at least to have considerably blunted its violence.

ing the occasional or exciting causes, which I have endeavored to point out above. It is, however, difficult to give any general rules here, as different asthmatics have their different idiosyncrasies with respect to externals. Thus, one asthmatic finds himself easiest living in the midst of a great city, while another cannot breathe but in the free air of the country. In the latter case, however, most asthmatics bear the air of a low ground, if tolerable free and dry, better than that of the mountain.

1400.] In diet, also, there is some difference to be made with respect to different asthmatics. None of them bear a large or full meal, or any food that is of slow and difficult solution in the stomach; but many of them bear animal food of the lighter kinds, and in moderate quantity. The use of vegetables which readily prove flatulent, are always very hurtful. In recent asthma, and especially in the young and plethoric, a spare, light, and cool diet is proper, and commonly necessary; but after the disease has continued for years, asthmatics commonly bear, and even require, a tolerable full diet, though in all cases a very full diet is very hurtful.

1401.] In drinking, water, or cool watery liquors, are the only safe and fit drinks for asthmatics; and all liquors ready to ferment, and become flatulent, are hurtful to them. Few asthmatics can bear any kind of strong drink; and any excess in such is always very hurtful to them. As asthmatics are commonly hurt by taking warm or tepid drink; so, both upon that account and upon account of the liquors weakening the nerves of the stomach, neither tea nor coffee is proper in this disease.

1402.] Asthmatics commonly bear no bodily motion easily but that of the most gentle kind. Riding, however, on horseback, or going in a carriage, and especially sailing, are very often useful to asthmatics.

CHAPTER VII.

OF THE CHINCOUGH, OR HOOPINGCOUGH.

1403.] **T**HIS disease is commonly epidemic, and manifestly contagious. It seems to proceed from a contagion of a specific nature, and of a singular quality. It does not, like most other contagions, necessa-

rily produce a fever; nor does it, like most others, occasion any eruption, or produce otherwise any evident change in the state of the human fluids. It has, in common with the catarrhal contagion, and with that of the measles, a peculiar determination to the lungs; but with particular effects there, very different from those of the other two; as will appear from the history of this disease now to be delivered.

1404.] This contagion, like several others, affects persons but once in the course of their lives; and therefore, necessarily, children are most commonly the subjects of this disease: but there are many instances of it occurring in persons considerably advanced in life; though it is probable, that the further that persons are advanced in life, they are the less liable to be affected with this contagion.

1405.] The disease commonly comes on with the ordinary symptoms of a catarrh arising from cold; and often, for many days keeps entirely to that appearance; and I have had instances of a disease which, though evidently arising from the chincough contagion, never put on any other form than that of a common catarrh. This, however, seldom happens; for, generally in the second, and at farthest in the third week after the attack, the disease puts on its peculiar and characteristic symptom, a convulsive cough. This is a cough in which the expiratory motions peculiar to coughing are made with more frequency, rapidity, and violence, than usual. As these circumstances, however, in different instances of coughing, are in very different degrees; so no exact limits can be put to determine when the cough can be strictly said to be convulsive; and it is therefore especially by another circumstance that the chincough is distinguished from every other form of cough. This circumstance is, when many expiratory motions have been convulsively made, and thereby the air is in great quantity thrown out from the lungs, a full inspiration is necessarily and suddenly made; which, by the air rushing in through the glottis with unusual velocity, gives a peculiar sound. This sound is somewhat different in different cases, but is in general called a Hoop; and from it the whole of the disease is called the Hooping Cough. When this sonorous inspiration has happened, the convulsive coughing is again renewed, and continues in the same manner as before, till a quantity of mucus is thrown up from the lungs, or the contents of the stomach

are thrown up by vomiting. Either of these evacuations commonly puts an end to the coughing, and the patient remains free from it for some time after. Sometimes it is only after several alternate fits of coughing and hooping that expectoration or vomiting takes place; but it is commonly after the second coughing that these happen, and put an end to the fit.

1406.] When the disease, in this manner, has taken its proper form, it generally continues for a long time after, and generally from one month to three; but sometimes much longer, and that with very various circumstances.

1407.] The fits of coughing return at various intervals, rarely observing any exact period. They happen frequently in the course of the day, and more frequently still in the course of the night. The patient has commonly some warning of their coming on; and, to avoid that violent and painful concussion which the coughing gives to the whole body, he clings fast to any thing that is near to him, or demands to be held fast by any person that he can come at.

When the fit is over, the patient sometimes breathes fast, and seems fatigued for a little after: but in many this appears very little; and children are commonly so entirely relieved, that they immediately return to their play, or what else they were occupied in before.

1408.] If it happens that the fit of coughing ends in vomiting up the contents of the stomach, the patient is commonly immediately after seized with a strong craving and demand for food, and takes it in very greedily.

1409.] At the first coming on of this disease, the expectoration is sometimes none at all, or of a thin mucus only; and while this continues to be the case, the fits of coughing are more violent, and continue longer; but commonly the expectoration soon becomes considerable, and a very thick mucus, often in great quantity, is thrown up; and as this is more readily brought up, the fits of coughing are of shorter duration,

1410.] The violent fits of coughing frequently interrupt the free transmission of the blood through the lungs, and thereby the free return of blood from the vessels of the head. This occasions that turgescence and suffusion of face which commonly attends the fits of coughing, and seems to occasion also those eruptions of blood from the nose, and even from the eyes and ears, which sometimes happen in this disease.

1411.] This disease often takes place in the manner we have now described, without any pyrexia attending it ; but, though Sydenham had seldom observed it, we have found the disease very frequently accompanied with pyrexia, sometimes from the very beginning, but more frequently only after the disease had continued for some time. When it does accompany the disease, we have not found it appearing under any regular intermittent form. It is constantly in some degree present ; but with evident exacerbations towards evening, continuing till next morning.

1412.] Another symptom very frequently attending the chincough, is a difficulty of breathing ; and that not only immediately before and after fits of coughing, but as constantly present, though in different degrees in different persons. I have hardly ever seen an instance of a fatal chincough, in which a considerable degree of pyrexia and dyspnoea had not been for some time constantly present.

1413.] When by the power of the contagion this disease has once taken place, the fits of coughing are often repeated, without any evident exciting cause : but in many cases, the contagion may be considered as giving a predisposition only ; and the frequency of fits depends in some measure upon various exciting causes ; such as, violent exercise ; a full meal ; the having taken in food of difficult solution ; irritation of the lungs by dust, smoke or disagreeable odors of a strong kind : and especially any considerable emotion of the mind.

1414.] Such are the chief circumstances of this disease, and it is of various event ; which, however, may be commonly foreseen by attending to the following considerations.

The younger that children are, they are in the greater danger from this disease ; and of those to whom it proves fatal, there are many more under two years old than above it.

The older that children are, they are the more secure against an unhappy event ; and this I hold to be a very general rule, though I own there are many exceptions to it.

Children born of phthisical and asthmatic parents are in the greatest danger from this disease.

When the disease beginning in the form of a catarrh, is attended with fever and difficult breathing, and with little expectoration, it often proves fatal, without taking on the form of the hoopingcough ; but, in most of such cases, the coming on of the convulsive cough and hooping, bringing

on at the same time a more free expectoration, generally removes the danger.

When the disease is fully formed, if the fits are neither frequent nor violent, with moderate expectoration, and the patient, during the intervals of the fits, is easy, keeps his appetite, gets sleep, and is without fever or difficult breathing, the disease is attended with no danger; and these circumstances becoming daily more favorable, the disease very soon spontaneously terminates.

An expectoration, either very scanty or very copious, is attended with danger; especially if the latter circumstance is attended with great difficulty of breathing.

Those cases in which the fits terminate by a vomiting, and are immediately followed by a craving of food, are generally without danger.

A moderate hemorrhagy from the nose often proves salutary; but very large hemorrhagies are generally very hurtful.

This disease coming upon persons under a state of much debility, has very generally an unhappy event.

The danger of this disease sometimes arises from the violence of the fits of coughing, occasioning apoplexy, epilepsy, or immediate suffocation: but these accidents are very rare: and the danger of the disease seems generally to be in proportion to the fever and dyspnœa attending it.

1415.] The cure of this disease has been always considered as difficult, whether the purpose be to obviate its fatal tendency when it is violent, or merely to shorten the course of it when it is mild. When the contagion is recent, and continues to act, we neither know how to correct, nor how to expel it; and therefore the disease necessarily continues for some time: but it is probable, that the contagion in this as in other instances ceases at length to act; and that then the disease continues, as in other convulsive affections, by the power of habit alone.

1416.] From this view of the matter I maintain, that the practice must be different, and adapted to two different indications, according to the period of the disease. At the beginning of the disease, and for some time after, the remedies to be employed must be such as may obviate the violent effects of the disease, and the fatal tendency of it; but, after the disease has continued for some time, and is without any violent symptoms, the only remedies which can be required are those which may interrupt its course, and put an entire stop to it sooner than it would have spontaneously ceased.

1417.] For answering the first indication. In plethoric subjects, or in others, when from the circumstances of the cough and fits it appears that the blood is difficultly transmitted through the lungs, blood-letting* is a necessary remedy; and it may be even necessary to repeat it, especially in the beginning of the disease; but, as spasmodic affections do not commonly admit of much bleeding, so it is seldom proper in the chincough to repeat this remedy often.

1418.] As costiveness frequently attends this disease, so it is necessary to obviate or remove it by laxatives employed; and keeping an open belly is generally useful: but large evacuations in this way are commonly hurtful.†

1419.] To obviate or remove the inflammatory determination to the lungs that sometimes occurs in this disease, blistering is often useful, and even repeated blistering has been of service; but issues have not so much effect, and should by no means supersede the repeated blistering that may be indicated. When blisters are proper, they are more effectual when applied to the thorax, than when applied to any distant parts.

1420.] Of all other remedies, emetics are the most useful in this disease; both in general by interrupting the return of spasmodic affections, and in particular by determining very powerfully to the surface of the body, and thereby taking off determinations to the lungs. For these purposes, I think, full vomiting is frequently to be employed; and, in the intervals necessary to be left between the times of full vomiting, nauseating doses of the antimonial emetics may be useful.‡ I have never found the *sulphur auratum*, so much praised by Clossius, to be a convenient medicine, on account of the uncertainty of its dose; and the tartar emetic employed in the manner directed by the late Dr. Fothergill, has appeared to be more useful.

1421.] These are the remedies to be employed in the first

* Bleeding, in these cases, is best performed by leeches; and they seem to give greater relief when applied about the neck than on any other part.

† In general, the belly may be kept open by a proper attention to diet: roasted apples, eaten with brown sugar, stewed prunes, and other similar food, which children generally devour with avidity, sufficiently answer the purpose of removing or preventing costiveness.

‡ The method of giving tartar-emetic in nauseating doses has been frequently mentioned in preceding notes; but in cases of chincough, where children are generally our patients, we are under the necessity of varying the doses to the age and constitution. When the child is under a year old, we ought to use the weak solution of tartar-emetic, specified in the end of the last note on article 185, in repeated doses of a table-spoonful every ten or fifteen minutes, till it operates. Large doses, especially to young children, are frequently attended with dangerous consequences, of which the following case is sufficient proof.—To a child of ten months old, that labored under the chincough, half a grain of tartar-emetic was given in a little cinnamon water. A violent vomiting was produced, and the child died suddenly, during the action of the medicine: on inspecting the body after death, we found the stomach burst, there being in it a laceration that admitted two fingers. The inspection of this body has made me always extremely cautious in administering emetics to young children.

stage of the disease for obviating its fatal tendency, and putting it into a safe train. But in the second stage, when I suppose the contagion has ceased to act, and that the disease continues merely by the power of habit, a different indication arises, and different remedies are to be employed.

1422.] This disease, which often continues for a long time, does not, in my opinion, continue during the whole of that time in consequence of the contagion's remaining in the body, and continuing to act in it. That the disease does often continue long after the contagion has ceased to act, and that too by the power of habit alone, appears to me probable from hence, that terror has frequently cured the disease; that any considerable change in the state of the system, such as the coming on of the small-pox, has also cured it; and lastly, that it has been cured by antispasmodic and tonic medicines; whilst none of all these means of cure can be supposed either to correct or to expel a morbid matter, though they are evidently suited to change the state and habits of the nervous system.

1423.] From this view we are directed to the indication that may be formed, and in a great measure to the remedies which may be employed in what we suppose to be the second stage of the disease. It may perhaps be alledged, that this indication of shortening the course of the disease is not very important or necessary, as it supposes that the danger or violence is over, and in consequence, that the disease will soon spontaneously cease. The last supposition, however, is not well founded; as the disease, like many other convulsive and spasmodic affections, may continue for a long time by the power of habit alone, and by the repetition of paroxysms may have hurtful effects; more especially as the violence of paroxysms, and therefore their hurtful effects, may be much aggravated by various external causes that may be accidentally applied. Our indication, therefore, is proper; and we proceed to consider the several remedies which may be employed to answer it.

1424.] Terror may possibly be a powerful remedy, but it is difficult to measure the degree of it that shall be produced; and, as a slight degree of it may be ineffectual, and a high degree of it dangerous, I cannot propose to employ it.

1425.] The other remedies which we suppose suited to our second indication, and which indeed have been frequently employed in this disease, are antispasmodics or tonics.

Of the antispasmodics, castor has been particularly re-

commended by Dr. Morris ; but in many trials we have not found it effectual.

With more probability musk has been employed : but whether it be from our not having it of a genuine kind, or not employing it in sufficiently large doses, I cannot determine ; but we have not found it commonly successful. Of antispasmodics, the most certainly powerful is opium : and when there is no considerable fever or difficulty of breathing present, opium has often proved useful in moderating the violence of the chincough ; but I have not known it employed so as entirely to cure disease.

If hemlock has proved a remedy in this disease, as we must believe from Dr. Butter's accounts, I agree with that author, that it is to be considered as an antispasmodic. Upon this supposition, it is a probable remedy ; and from the accounts of Dr. Butter and some others, it seems to have been often useful : but, in our trials, it has often disappointed us, perhaps from the preparation of it not having been always proper.*

1426.] Of the tonics, I consider the cupmoss, formerly celebrated, as of this kind ; as also the bark of the misletoe ; but I have had no experience of either, as I have always trusted to the Peruvian bark. I consider the use of this medicine as the most certain means of curing the disease in its second stage ; and when there has been little fever present, and a sufficient quantity of the bark has been given, it has seldom failed of soon putting an end to the disease.

1427.] When convulsive disorders may be supposed to continue by the force of habit alone, it has been found that a considerable change in the whole of the circumstances and manner of life has proved a cure of such diseases ; and analogy has applied this in the case of the chincough so far, that a change of air has been employed, and supposed to be useful. In several instances I have observed it to be so ; but I have never found the effects of it durable, or sufficient to put an entire stop to the disease.

* Experience has not found that any of the antispasmodics have ever been employed with much advantage in this disease. All of them are extremely nauseous, and consequently difficultly given to children who cannot well swallow pills.

SECTION III.

Of the Spasmodic Affections in the Natural Functions.

CHAPTER VIII.

OF THE PYROSIS, OR WHAT IS NAMED IN SCOTLAND, THE WATER-BRASH.

1428.] **T**HE painful sensations referred to the stomach, and which are probably occasioned by real affections of this organ, are of different kinds. Probably they proceed from affections of different natures, and should therefore be distinguished by different appellations ; but I must own that the utmost precision in this matter will be difficult. In my essay towards a methodical Nosology, I have, however, attempted it. For those pains that are either acute and pungent, or accompanied with a sense of distention, or with a sense of constriction, if they are at the same time, not attended with any sense of acrimony or heat, I employ the appellation of *Gastrodynia*. To express those painful or uneasy sensations which seem to arise from a sense of acrimony irritating the part, or from such a sense of heat as the application of acrids, whether externally or internally applied, often gives, I employ the term of *Cardialgia* ; and by this I particularly mean to denote those feelings which are expressed by the term *Heartburn* in the English language. I think the term *Soda* has been commonly employed by practical writers to express an affection attended with feelings of the latter kind.

1429.] Beside the pains denoted by the terms *Gastrodynia*, *Periodyn timeria*, *Cardialgia*, and *Soda*, there is, I think another painful sensation different from all of these, which is named by Mr. Sauvages, *Pyrosis Suecica* ; and his account of it is taken from Linnæus, who names it *Cardialgia Sputatoria*. Under the title of *Pyrosis* Mr. Sauvages has formed a genus, of which the whole of the species, except the eighth, which he gives under the title of *Pyrosis Suecica*, are all of them species of the *Gastrodynia* or of the *Cardialgia* ; and if there is a genus to be formed under the title of *Pyrosis*, it can in my opinion comprehend only the species I have mentioned. In this case, indeed, I own

that the term is not very proper; but my aversion to introduce new names has made me continue to employ the term of Mr. Sauvages.

1430.] The Gastrodynia and Cardialgia I judge to be for the most part symptomatic affections; and therefore have given them no place in this work: but the Pyrosis, as an idiopathic disease, and never before treated of in any system, I propose to treat of here.

1431.] It is a disease frequent among people in lower life; but occurs also, though more rarely, in people of better condition. Though frequent in Scotland, it is by no means so frequent as Linnæus reports it to be in Lapland: It appears most commonly in persons under middle age, but seldom in any persons before the age of puberty. When it has once taken place, it is ready to recur occasionally for a long time after; but it seldom appears in persons considerably advanced in life. It affects both sexes, but more frequently the female. It sometimes attacks pregnant women, and some women only when they are in that condition. Of other women, it more frequently affects the unmarried; and of the married, most frequently the barren. I have had many instances of its occurring in women laboring under a fluor albus.

1432.] The fits of this disease usually come on in the morning and forenoon, when the stomach is empty. The first symptom of it is a pain at the pit of the stomach, with a sense of constriction, as if the stomach was drawn towards the back; the pain is increased by raising the body into an erect posture, and therefore the body is bended forward. This pain is often very severe; and, after continuing for some time, it brings on an eructation of a thin watery fluid in considerable quantity. This fluid has sometimes an acrid taste, but is very often absolutely insipid. The eructation is for some time frequently repeated; and does not immediately give relief to the pain which preceded it, but does so at length, and puts an end to the fit.

1433.] The fits of this disease commonly come on without any evident exciting cause: and I have not found it steadily connected with any particular diet. It attacks persons using animal food, but I think more frequently those living on milk and farinacea. It seems often to be excited by cold applied to the lower extremities; and is readily excited by any considerable emotion of mind. It is often without any symptoms of dyspepsia.

1434.] The nature of this affection is not very obvious; but I think it may be explained in this manner: It seems to begin by a spasm of the muscular fibres of the stomach; which is afterwards, in a certain manner, communicated to the blood-vessels and exhalants, so as to increase the impetus of the fluids in these vessels, while a constriction takes place on their extremities. While therefore the increased impetus determines a greater quantity than usual of fluids into these vessels, the constriction upon their extremities allows only the pure watery parts to be poured out, analogous, as I judge, in every respect, to what happens in the diabetes hystericus.

1435.] The practice in this disease is as difficult as the theory. The paroxysm is only to be certainly relieved by opium. Other antispasmodics, as vitriolic ether and volatile alkali, are sometimes of service, but not constantly so. Although opium and other antispasmodics relieve the fits, they have no effect in preventing their recurrence. For this purpose, the whole of the remedies of dyspepsia have been employed without success. Of the use of the nux vomica, mentioned as a remedy by Linnæus, I have had no experience.

CHAPTER IX.

OF THE COLIC.

1436.] **T**HE principal symptom of this disease, is a pain felt in the lower belly. It is seldom fixed and pungent in one part, but is a painful distention in some measure spreading over the whole of the belly; and particularly with a sense of twisting or wringing round the navel. At the same time, with this pain, the navel and teguments of the belly are frequently drawn inwards, and often the muscles of the belly are spasmodically contracted, and this in separate portions, giving the appearance of a bag full of round balls.

1437.] Such pains, in a certain degree, sometimes occur in cases of diarrhœa and cholera; but these are less violent and more transitory, and are named Gripings. It is only when more violent and permanent, and attended with costiveness, that they constitute colic. This is also commonly attended with vomiting, which in many cases is frequently

repeated, especially when any thing is taken down into the stomach; and in such vomitings, not only the contents of the stomach are thrown up, but also the contents of the duodenum, and therefore frequently a quantity of bile.

1438.] In some cases of colic, the peristaltic motion is inverted through the whole length of the alimentary canal, in such a manner that the contents of the great guts, and therefore, stercoraceous matter, is thrown up by vomiting; and the same inversion appears still more clearly from this, that what is thrown into the rectum by glyster is again thrown out by the mouth. In these circumstances of inversion the disease has been named Ileus, or the Iliac Passion; and this has been supposed to be a peculiar disease distinct from colic; but to me it appears that the two diseases are owing to the same proximate cause, and have the same symptoms, only in a different degree.

1439.] The colic is often without any pyrexia attending it. Sometimes, however, an inflammation comes upon the part of the intestine especially affected; and this inflammation aggravates all the symptoms of the disease, being probably what brings on the most considerable inversion of the peristaltic motion; and, as the stercoraceous vomiting is what especially distinguishes the ileus, this has been considered as always depending on an inflammation of the intestines. However, I can affirm, that as there are inflammations of the intestines without stercoraceous vomiting, so I have seen instances of stercoraceous vomiting without inflammation; and there is therefore no ground for distinguishing ileus from colic, but as a higher degree of the same affection.

1440.] The symptoms of the colic, and the dissections of bodies dead of this disease, show very clearly that it depends upon a spasmodic constriction of a part of the intestines; and that this therefore is to be considered as the proximate cause of the disease. In some of the dissections of persons dead of this disease, an intus-susception has been remarked to have happened; but whether this be constantly the case in all the appearances of ileus, is not certainly determined.

1441.] The colic has commonly been considered as being of different species, but I cannot follow the writers on this subject in the distinctions they have established. So far, however, as a difference of the remote cause constitutes a difference of species, a distinction may perhaps be admit-

ted ; and accordingly in my Nosology I have marked seven different species : but I am well persuaded, that in all these different species the proximate cause is the same, that is, a spasmodic constriction of a part of the intestines : and consequently, that in all these cases the indication of cure is the same, that is, to remove the constriction mentioned. Even in the several species named *Stercorea*, *Callosa*, and *Calculosa*, in which the disease depends upon an obstruction of the intestine, I am persuaded that these obstructions do not produce the symptoms of colic, excepting in so far as they produce spasmodic constrictions of the intestines ; and therefore, that the means of cure in these cases, so far as they admit of cure, must be obtained by the means which the general indication above-mentioned suggests.

1442.] The cure, then, of the colic universally, is to be obtained by removing the spasmodic constrictions of the intestines ; and the remedies suited to this purpose may be referred to three general heads :

1. The taking off the spasm by various antispasmodic powers.

2. The exciting the action of the intestines by purgatives.

3. The employing mechanical dilatation.

1443.] Before entering upon a particular account of these remedies, it will be proper to observe, that in all cases of violent colic, it is advisable to practise blood-letting ; both as it may be useful in obviating the inflammation which is commonly to be apprehended, and even as it may be a means of relaxing the spasm of the intestine. This remedy may perhaps be improper in persons of a weak and lax habit, but in all persons of tolerable vigor it will be a safe remedy ; and in all cases where there is the least suspicion of an inflammation actually coming on, it will be absolutely necessary. Nay, it will be even proper to repeat it perhaps several times, if, with a full and hard pulse, the appearance of the blood drawn, and the relief obtained by the first bleeding, shall authorise such repetition.

1444.] The antispasmodic powers that may be employed, are, the application of heat in a dry or humid form, the application of blisters, the use of opium, and the use of mild oils.

The application of heat, in a dry form, has been employed by applying to the belly of the patient a living animal, or bladders filled with warm water, or bags of substances which long retain their heat ; and all these have sometimes

been applied with success ; but none of them seem to me so powerful as the application of heat in a humid form.

This may be employed either by the immersion of a great part of the body in warm water, or by fomenting the belly with cloths wrung out of hot water. The immersion has advantages from the application of it to a greater part of the body, and particularly to the lower extremities : but immersion cannot always be conveniently practised, and fomentation may have the advantage of being longer continued ; and it may have nearly all the benefit of immersion, if it be at the same time applied both to the belly and to the lower extremities.

1445.] From considering that the teguments of the lower belly have such a connection with the intestines, as at the same time to be affected with spasmodic contraction, we perceive that blisters applied to the belly may have the effect of taking off the spasms both from the muscles of the belly and from the intestines ; and accordingly, blistering has often been employed in the colic with advantage. Analogous to this, rubefacients applied to the belly have been frequently found useful.

1446.] The use of opium in the colic may seem to be an ambiguous remedy. Very certainly it may for some time relieve the pain, which is often so violent and urgent, that it is difficult to abstain from the use of such a remedy. At the same time, the use of opium retards or suspends the peristaltic motion so much, as to allow the intestines to fall into constrictions ; and may therefore, while it relieves the pain, render the cause of the disease more obstinate. On this account, and further as opium prevents the operation of purgatives so often necessary in this disease, many practitioners are averse to the use of it, and some entirely reject the use of it as hurtful. There are, however, others who think they can employ opium in this disease with much advantage.

In all cases where the colic comes on without any previous costiveness, and arises from cold, from passions of the mind, or other causes which operate especially on the nervous system, opium proves a safe and certain remedy ; but in cases which have been preceded by long costiveness, or where the colic, though not preceded by costiveness, has however continued for some days without a stool, so that a stagnation of fæces in the colon is to be suspected, the use of opium is of doubtful effect. In such cases, unless a

stool has been first procured by medicine, opium cannot be employed but with some hazard of aggravating the disease. However, even in those circumstances of costiveness, when, without inflammation, the violence of the spasm is to be suspected, when vomiting prevents the exhibition of purgatives, and when with all this the pain is extremely urgent, opium is to be employed, not only as an anodyne, but also as an antispasmodic, necessary to favor the operation of purgatives ; and may be so employed, when, either at the same time with the opiate, or not long after it, a purgative can be exhibited.

Is the hyoscyamus, as often showing, along with its narcotic, a purgative quality, better suited to this disease than opium ?

1447.] It is seemingly on good grounds that several practitioners have recommended the large use of mild oils in this disease, both as antispasmodics and as laxatives ; and, where the palate and stomach could admit them, I have found them very useful. But as there are few Scottish stomachs that can admit a large use of oils, I have had few opportunities of employing them.

1448.] The second set of remedies adapted to the cure of colic, are purgatives ; which, by exciting the action of the intestines, either above or below the obstructed place, may remove the constriction ; and therefore these purgatives may be given either by the mouth, or thrown by glysters into the anus. As the disease is often seated in the great guts ; as glysters, by having a more sudden operation, may give more immediate relief ; and as purgatives given by the mouth are ready to be rejected by vomiting ; so it is common, and indeed proper, to attempt curing the colic in the first place by glysters. These may at first be of the mildest kind, consisting of a large bulk of water, with some quantity of mild oil ; and such are sometimes sufficiently efficacious : however, they are not always so ; and it is commonly necessary to render them more powerfully stimulant by the addition of neutral salts, of which the most powerful is the common or marine salt. If these saline glysters, as sometimes happens, are rendered again too quickly, and on this or otherwise are found ineffectual, it may be proper instead of these salts, to add to the glysters an infusion of senna, or of some other purgative that can be extracted by water. The antimonial wine.*

* Tartar emetic is surer than the antimonial wine ; but it is a very violent remedy, and ought to be used with caution even in glysters. Five or six grains is the usual quantity given in glysters.

may be sometimes employed in glysters with advantage. Hardly any glysters are more effectual than those made of turpentine properly* prepared. When all other injections are found ineffectual, recourse is to be had to the injection of tobacco smoke; and, when even this fails, recourse is to be had to the mechanical dilatation to be mentioned hereafter.

1449.] As glysters often fail altogether in relieving this disease, and as even when they give some relief they are often imperfect in producing a complete cure; so it is generally proper, and often necessary, to attempt a more entire and certain cure by purgatives given by the mouth. The more powerful of these, or, as they are called, the Drastic Purgatives, may be sometimes necessary; but their use is to be avoided, both because they are apt to be rejected by vomiting, and because when they do not succeed in removing the obstruction, they are ready to induce an inflammation. Upon this account it is usual, and indeed proper, at least in the first place, to employ the milder and less inflammatory purgatives. None have succeeded with me better than the chrystals of tartar,† because this medicine may be given in small but repeated doses to a considerable quantity; and under this management it is the purgative least ready to be rejected by vomiting, and much less so than the other neutral salts. If a stronger purgative be required, jalap,‡ properly prepared, is less offensive to the palate, and sits better upon the stomach, than most

* The proper manner of preparing turpentine glysters is as follows :

Rx. Tereb. Venet. ʒvi.

Vitel. Ov. No. ii.

Tere in mortario marmoreo donec penitus solvetur Terebinthina; dein adde gradatim,

Aq. font. frigida, ʒii.

Huic affunde

Aq. font. tepid. lb. i.

M. f. Enema, statim injiciend.

the turpentine does not dissolve sufficiently with the yolks or two eggs, a third may be added.

† Crystals of tartar may be given in doses of two drachms each, repeated every two hours or oftener. The chief objection against the use of this salt is its difficult solution in water, and therefore many practitioners prefer the soluble tartar, or the Rochel salt.

‡ The Pulvis Jalap. comp. of the Edinburgh Pharmacopœia answers in general very well; but the following formula is less liable to be rejected by the vomiting which so frequently accompanies this disease.

Rx. Resin. Jalap. gr. xii.

Amygdal. dulc. decorticat. No. vi.

Sacch. alb. ʒi.

Tere in mortario marmoreo, et adde gradatim,

Aq. Cinnamom. simpl. ʒi.

M. f. haust.

Half of this portion may be given at once, and the other half an hour afterward.

other powerful purgatives. On many occasions of colic, nothing is more effectually purgative than a large dose of calomel.* Some practitioners have attempted to remove the obstruction of the intestines by antimonial emetics† exhibited in small doses, repeated at proper intervals; and when these doses are not entirely rejected by vomiting, they often prove effectual purgatives.

When every purgative has failed, the action of the intestines has been effectually excited by throwing cold water on the lower extremities.

1450.] The third means of overcoming the spasm of the intestines in this disease, is by employing a mechanical dilatation; and it has been frequently supposed that quicksilver, given in large quantity, might operate in this manner. I have not, however, found it successful; and the theory of it is with me very doubtful. Some authors have mentioned the use of gold and silver pills, or balls, swallowed down; but I have no experience of such practices, and I cannot suppose them a probable means of relief.

1451.] Another means of mechanical dilatation and a more probable measure, is by injecting a large quantity of warm water by a proper syringe, which may throw it with some force, and in a continued stream, into the rectum. Both from the experiments reported by the late Mr. De Haen, and from those I myself have had occasion to make, I judge this remedy to be one of the most powerful and effectual.‡

1452.] I have now mentioned all the several means that may be employed for the cure of the colic, considered as a genus; but before I quit this subject, it may be expected that I should take notice of some of the species which may seem to require a particular consideration. In this view it may be expected that I should especially take notice of that species named the Colic of Poitou, and particularly known in England by the name of the Devonshire Colic.

1453.] This species of the disease is certainly a peculiar one, both in respect of its cause and its effects; but, as to the first, it has been lately so much the subject of investi-

* This is French practice, but it is dangerous. It has however been serviceable in many cases, when given in doses of 12 or 15 grains, or even a scruple when other purgatives have failed.

† As the stomach, as was before observed, is very irritable in this disease, the practitioner will find considerable difficulty in managing antimonials. It is better to avoid them altogether, for they may do much mischief.

‡ It is to be thrown up, by means of a large syringe, in such quantities, that the patient begins to feel a sense of uneasiness from the great distention which it occasions. Some patients have borne two gallons to be injected, and the cases were attended with the desired success.

The cases in which these large injections are most useful, are those in which hardened feces are accumulated in the colon. The warm water answers two intentions, viz. dilating the passage, and softening the feces.

gation, and is so well ascertained by the learned physicians Sir George Baker and Dr. Hardy, that it is unnecessary for me to say any thing of it here.

With respect to the cure of it,* so far as it appears in the form of a colic, my want of experience concerning it does not allow me to speak with any confidence on the subject; but, so far as I can learn from others, it appears to me, that it is to be treated by all the several means that I have proposed above for the cure of colic in general.

How far the peculiar effects of this disease are to be certainly foreseen and obviated, I have not properly learned; and I must leave the matter to be determined by those who have had sufficient experience in it.

CHAPTER X.

OF THE CHOLERA.

1454.] **I**N this disease, a vomiting and purging concurring together, or frequently alternating with one another, are the chief symptoms. The matter rejected both upwards and downwards appears manifestly to consist chiefly of bile.

1455.] From this last circumstance I conclude, that the disease depends upon an increased secretion of bile, and its copious effusion into the alimentary canal: and, as in this it irritates and excites the motions above mentioned, I infer, that the bile thus effused in larger quantity is at the same time also of a more acrid quality. This appears likewise from the violent and very painful gripings that attend the disease, and which we can impute only to the violent spasmodic contractions of the intestines that take place here. These spasms are commonly communicated to the abdominal muscles, and very frequently to those of the extremities.

1456.] In the manner now described, the disease frequently proceeds with great violence, till the strength of the patient is greatly, and often suddenly, weakened; while a coldness of the extremities, cold sweats, and faintings, coming

* In the early stages of this disease, the belly is to be kept open by the mildest laxatives, and a milk diet strictly used. The following formula answers extremely well.

R. Mannæ,
Ol. Olivæ. āā ʒi.
M. f. Linctus.

This quantity is a proper dose, and it may be repeated every day with thirty or forty drops of laudanum at bed-time. If the symptoms, however, do not abate, we may at the same time give large emollient glysters.

on, an end is put to the patient's life, sometimes in the course of one day. In other cases the disease is less violent, continues for a day or two, and then ceases by degrees ; though such recoveries seldom happen without the assistance of remedies.

1457.] The attacks of this disease are seldom accompanied with any symptoms of pyrexia ; and though, during the course of it, both the pulse and respiration are hurried and irregular, yet these symptoms are generally so entirely removed by the remedies that quiet the spasmodic affection peculiar to the disease, as to leave no ground for supposing that it had been accompanied by any proper pyrexia.

1458.] This is a disease attending a very warm state of the air ; and, in very warm climates, it may perhaps appear at any time of the year : but even in such climates it is most frequent during their warmest seasons ; and in temperate climates, it appears only in the warm seasons. Dr. Sydenham considered the appearances of this disease in England to be confined to the month of August ; but he himself observed it to appear sometimes towards the end of summer, when the season was unusually warm ; and that, in proportion to the heat, the violence of the disease was greater. Others have observed that it appeared more early in summer, and always sooner or later, according as the great heats sooner or later set in.

1459.] From all these circumstances, it is, I think, very evident, that this disease is the effect of a warm atmosphere, producing some change in the state of the bile in the human body : and the change may consist, either in the matter of the bile being rendered more acrid, and thereby fitted to excite a more copious secretion ; or, in the same matter, its being prepared to pass off in larger quantity than usual.

1460.] It has been remarked, that in warm climates and seasons, after extremely hot and dry weather, a fall of rain cooling the atmosphere seems especially to bring on this disease ; and it is very probable than an obstructed perspiration may have also a share in this, though it is also certain that the disease does appear when no change in the temperature of the air, nor any application of cold has been observed.

1461.] It is possible, that, in some cases, the heat of the season may give only a predisposition, and that the disease may be excited by certain ingesta or other causes ; but it is equally certain, that the disease has occurred without any

previous change or error, either in diet, or in the manner of life, that could be observed.

1462.] The Nosologists have constituted a Genus under the title of Cholera, and under this have arranged as a species every affection in which a vomiting and purging of any kind happened to concur. In many of these species, however, the matter evacuated is not bilious; nor does the evacuation proceed from any cause in the state of the atmosphere. Further, in many of these species also, the vomiting which occurs is not an essential, but merely an accidental symptom from the particular violence of the disease. The appellation of Cholera therefore should, in my opinion, be confined to the disease I have described above; which by its peculiar cause, and perhaps also by its symptoms, is very different from all the other species that have been associated with it. I believe that all the other species arranged under the title of Cholera by Sauvages or Sagar, may be properly enough referred to the genus of Diarrhœa; which we are to treat of in the next chapter.

The distinction I have endeavored to establish between the proper Cholera, and the other diseases that have sometimes got the same appellation, will, as I judge, supersede the question, Whether the Cholera, in temperate climates, happens at any other season than that above assigned?

1463.] In the case of a genuine cholera, the cure of it has been long established by experience.

In the beginning of the disease, the evacuation of the redundant bile is to be favored by the plentiful exhibition of mild diluents,* both given by the mouth, and injected by the anus, and all evacuant medicines, employed in either way, are not only superfluous, but commonly hurtful.

1464.] When the redundant bile appears to be sufficiently washed out, and even before that, if the spasmodic affections of the alimentary canal become very violent, and are communicated in a considerable degree to other parts of the body, or when a dangerous debility seems to be induced, the irritation is to be immediately obviated by opiates in sufficiently large doses, but in small bulk, and given either by the mouth, or by glyster.†

* Thin rice gruel is as proper a mild diluent as any we can use; as is also water in which a crust of bread is boiled. A very small quantity of port wine may be added to these diluents if the pulse be small or weak.

† A pill consisting of a grain of opium may be given every two hours, and if it does not relieve the symptoms after the third or fourth repetition, we may inject the following glyster:

Rx. Decoct. Hord. ʒx.

Tinct. Thebaic. ʒii.

1465.] Though the patient be in this manner relieved, it frequently happens, that when the operation of the opium is over, the disease shows a tendency to return; and, for at least some days after the first attack, the irritability of the intestines, and their disposition to fall into painful spasmodic contractions, seem to continue. In this situation, the repetition of the opiates, for perhaps several days, may come to be necessary; and as the debility commonly induced by the disease favors the disposition to spasmodic affections, it is often useful and necessary, together with the opiates, to employ the tonic powers of the Peruvian bark.*

CHAPTER XI.

OF DIARRHŒA, OR LOOSENESS.

1466.] **T**HIS disease consists in evacuation by stool, more frequent and of more liquid matter than usual. This leading and characteristic symptom is so diversified in its degree, in its causes, and in the variety of matter evacuated, that it is almost impossible to give any general history of the disease.

1467.] It is to be distinguished from dysentery, by not being contagious; by being generally without fever; and by being with the evacuation of the natural excrements, which are, at least, for some time, retained in dysentery. The two diseases have been commonly distinguished by the gripings being more violent in the dysentery; and they are commonly less violent and less frequent in diarrhœa: but as they frequently do occur in this also, and sometimes to a considerable degree, so they do not afford any proper distinction.†

1468.] A diarrhœa is to be distinguished from cholera chiefly by the difference of their causes; which, in cholera,

M. f. Enema.

This glyster may be repeated twice, or thrice if there should be occasion.

* The bark in these cases is often successfully given along with rhubarb, as in the following formula:

R. Pulv. Cort. Peruv. ʒʒ.
Rad. Rhei, ʒi.

M. f. Pulv. in part. æqual. xii. dividend.

One of these powders may be given three times a day with a glass of port wine.

† Tenesmus is a distinguishing symptom of dysentery, but it is sometimes present in diarrhœa also; especially those diarrhœas which proceed from acrid or putrid substances in the intestines.

is of one peculiar kind ; but in diarrhœa is prodigiously diversified, as we shall see presently. It has been common to distinguish cholera by the evacuation downwards being of bilious matter, and by this being always accompanied with a vomiting of the same kind ; but it does not universally apply, as a diarrhœa is sometimes attended with vomiting, and even of bilious matter.

1469.] The disease of diarrhœa, thus distinguished, is very greatly diversified ; but in all cases, the frequency of stools is to be imputed to a preternatural increase of the peristaltic motion in the whole, or at least in a considerable portion, of the intestinal canal. This increased action is in different degrees, is often convulsive and spasmodic, and at any rate is a *motus abnormis* : for which reason, in the Methodical Nosology, I have referred it to the order of Spasmi, and accordingly treat of it in this place.

1470.] Upon the same ground, as I consider the disease named Lientery to be an increased peristaltic motion over the whole of the intestinal canal, arising from a peculiar irritability, I have considered it as merely a species of diarrhœa. The idea of a laxity of the intestinal canal being the cause either of lientery, or other species of diarrhœa, appears to me to be without foundation, except in the single case of frequent liquid stools from a palsy of the *sphincter ani*.

1471.] The increased action of the peristaltic motion, I consider as always the chief part of the proximate cause of diarrhœa : but the disease is further, and indeed chiefly, diversified by the different causes of this increased action ; which we are now to inquire into.

1472.] The several causes of the increased action of the intestines may be referred, I think, in the first place, to two general heads.

The *first* is, of the diseases of certain parts of the body which, either from a consent of the intestines with these parts, or from the relation which the intestines have to the whole system, occasion an increased action in the intestines, without the transference of any stimulant matter from the primary diseased part to them.

The *second* head of the causes of the increased action of the intestines is the stimuli of various kinds, which are applied directly to the intestines themselves.

1473.] These affections of other parts of the system may affect the intestines without transference or appli-

cation of any of the stimulant matter, we learn from hence that the passions of the mind do in some persons excite diarrhœa.

1474.] That diseases in other parts may in like manner affect the intestines, appears from the dentition of infants frequently exciting diarrhœa. I believe that the gout often affords another instance of the same kind; and probably there are others also, though not well ascertained.

1475.] The stimuli (1472.) which may be applied to the intestines are of very various kinds; and are either,

1. Matters introduced by the mouth.
2. Matters poured into the intestines by the several excretories opening into them.
3. Matters poured from certain preternatural openings made into them in certain diseases.

1476.] Of those (1475, 1.) introduced by the mouth, the first to be mentioned are the aliments commonly taken in. Too great a quantity of these taken in, often prevents their due digestion in the stomach; and by being thus sent in their crude, and probably acrid, state to the intestines, they frequently excite diarrhœa.

The same aliments, though in proper quantity, yet having too great a proportion, as frequently happens, of saline or saccharine matter along with them, prove stimulant to the intestines, and excite diarrhœa.

But our aliments prove especially the causes of diarrhœa, according as they, from their own nature, or from the weakness of the stomach, are disposed to undergo an undue degree of fermentation there, and thereby become stimulant to the intestines. Thus acescent aliments are ready to produce diarrhœa; but whether from their having any directly purgative quality, or only as mixed in an over proportion with the bile, is not well determined.

1477.] Not only the acescent, but also the putrescent disposition of the aliments, seems to occasion a diarrhœa; and it appears that even the effluvia of putrid bodies, taken in any way in large quantity, have the same effect.

Are oils or fats, taken in as part of our aliments, ever the cause of diarrhœa? and if so, in what manner do they operate?*

1478.] The other matters introduced by the mouth, which may be causes of diarrhœa, are those thrown in either as medicines, or poisons that have the faculty of stimulat-

* Rancid oils and fats certainly irritate the intestines, and may therefore produce diarrhœa.

ing the alimentary canal. Thus, in the list of the *Materia Medica*, we have a long catalogue of those named purgatives; and in the list of poisons, we have many possessed of the same quality. The former, given in a certain quantity, occasion a temporary diarrhœa; and given in very large doses, may occasion it in excess, and continue it longer than usual, producing that species of diarrhœa named a Hypercatharsis.

1479.] The matters (1475, 2.) poured into the cavity of the intestines from the excretories opening into them, and which may occasion diarrhœa, are either those from the pancreatic or biliary duct, or those from the excretories in the coats of the intestines themselves.

1480.] What changes may happen in the pancreatic juice I do not exactly know; but I suppose that an acrid fluid may issue from the pancreas, even while still entire in its structure; but more especially when it is in a suppurated, scirrhus, or cancerous state, that a very acrid matter may be poured out by the pancreatic duct, and occasion diarrhœa.

1481.] We know well, that from the biliary duct the bile may be poured out in greater quantity than usual: and there is little doubt of its being also sometimes poured out of a more than ordinary acrid quality. It is very probable, that in both ways the bile is frequently a cause of diarrhœa.

Though I have said above that diarrhœa may be commonly distinguished from cholera, I must admit here, that as the causes producing that state of the bile which occasions cholera, may occur in all the different possible degrees of force, so as, on one occasion, to produce the most violent and distinctly marked cholera; but, upon another, to produce only the gentlest diarrhœa: which, however, will be the same disease, only varying in degree: so I think it probable, that in warm climates, and in warm seasons, a *diarrhœa biliosa* of this kind may frequently occur, not to be always certainly distinguished from cholera.

However this may be, it is sufficiently probable, that, in some cases, the bile, without having been acted upon by the heat of the climate or season, may be redundant and acrid, and prove therefore a particular cause of diarrhœa.

1482.] Beside bile from the several causes and in the conditions mentioned, the biliary duct may pour out pus, or other matter from abscesses in the liver, which may be the cause of diarrhœa.

Practical writers take notice of a diarrhœa wherein a thin

and bloody liquid is discharged ; which they suppose to have proceeded from the liver, and have therefore given the disease the name of *Hepatirrhœa* : but we have not met with any instance of this kind ; and therefore cannot properly say any thing concerning it.

1483.] A second set of excretories, from which matter is poured into the cavity of the intestines, are those from the coats of the intestines themselves ; and are either the exhalants proceeding directly from the extremities of arteries, or the excretories from the mucous follicles : and both these sources occur in prodigious number over the internal surface of the whole intestinal canal. It is probable that it is chiefly the effusion from these sources which, in most instances, gives the matter of the liquid stools occurring in *diarrhœa*.

1484.] The matter from both sources may be poured out in larger quantity than usual, merely by the increased action of the intestines, whether that be excited by the passions of the mind (1473.) by diseases in other parts of the system (1472, 1.) or by the various stimulants mentioned 1476, and following ; or the quantity of matter poured out may be increased, not so much by the increased action of the intestines, as by an increased *afflux* of fluids from other parts of the system.

Thus, cold applied to the surface of the body, and suppressing perspiration, may determine a greater quantity of fluids to the intestines.

Thus, in the *ischuria renalis*, the urine taken into the blood-vessels is sometimes determined to pass off again by the intestines.

In like manner, pus or serum may be absorbed from the cavities in which they have been stagnant, and be again poured out into the intestines, as frequently happens, in particular with respect to the water of dropsies.

1485.] It is to be observed here, that a *diarrhœa* may be excited not only by a copious *afflux* of fluids from other parts of the system, but likewise by the mere determination of various acrid matters from the mass of blood into the cavity of the intestines. Thus it is supposed that the morbid matter of fevers is sometimes thrown out into the cavity of the intestines, and gives a critical *diarrhœa* : and whether I do or do not admit the doctrine of critical evacuations, I think it is probable that the morbid matter of the exanthe-

mata is frequently thrown upon the intestines, and occasions diarrhœa.

1486.] It is to me further probable, that the putrescent matter diffused over the mass of blood in putrid diseases, is frequently poured out by the exhalants into the intestines, and proves there the cause, at least in part, of the diarrhœa so commonly attending these diseases.

1487.] Upon this subject of the matters poured into the cavity of the intestines, I have chiefly considered them as poured out in unusual quantity, but it is probable that, for the most part, they are also changed in their quality, and become of a more acrid and stimulant nature; upon which account especially it is that they excite, or at least increase a diarrhœa.

1488.] How far, and in what manner, the exhalant fluid may be changed in its nature and quality, we do not certainly know; but with respect to the fluid from the mucous excretories, we know, that when poured out in unusual quantity, it is commonly, at the same time, in a more liquid and acrid form; and may prove, therefore, considerably irritating.

1489.] 'Though the copious effusion of a more liquid and acrid matter from the mucous excretories, be probably owing to the matter being poured out immediately as it is secreted from the blood into the mucous follicles, without being allowed to stagnate in the latter, so as to acquire that milder quality and thicker consistence we commonly find in the mucus in its natural state; and although we might suppose the excretions of a thin and acrid fluid should always be the effect of every determination to the mucous follicles, and of every stimulant applied to them; yet it is certain, that the reverse is sometimes the case; and that from the mucous follicles, there is frequently an increased excretion of a mucus, which appears in its proper form of a mild, viscid, and thickish matter. This commonly occurs in the case of dysentery; and it has been observed to give a species of diarrhœa, which has been properly named the *Diarrhœa Mucosa*.

1490.] A third source of matter poured into the cavity of the intestines, and occasioning diarrhœa (1475. 3.) is from those preternatural openings produced by diseases in the intestines or neighboring parts. Thus the blood-vessels on the internal surface of the intestines may be opened by erosion, rupture, or anastomosis, and pour into the ca-

vity their blood, which, either by its quantity, or by its acrimony, whether inherent, or acquired by stagnation, may sometimes give a diarrhœa evacuating bloody matter. This is what I think happens in that disease which has been called the *Melæna* or *Morbus Niger*.

1491.] Another preternatural source of matter poured into the cavity of the intestines, is the rupture of abscesses seated either in the coats of the intestines themselves, or in any of the contiguous viscera, which, during an inflamed state, had formed an adhesion with some part of the intestines. The matter thus poured into their cavity may be various; purulent, or sanious, or both together, mixed at the same time with more or less of blood; and in each of these states may be a cause of diarrhœa.

1492.] Amongst the stimuli that may be directly applied to the intestines, and which, by increasing their peristaltic motion, may occasion diarrhœa, I must not omit to mention worms as having frequently that effect.

1493.] I must also mention here a state of the intestines, wherein their peristaltic motion is preternaturally increased, and a diarrhœa produced; and that is, when they are affected with an erythematic inflammation. With respect to the existence of such a state, and its occasioning diarrhœa, see what is said above in 398, and following. Whether it is to be considered as a particular and distinct case of diarrhœa, or is always the same with some of those produced by one or other of the causes above-mentioned, I have not been able to determine.

1494.] Lastly, by an accumulation of alimentary or of other matter poured into the cavity of the intestines from several of the sources above-mentioned, a diarrhœa may be especially occasioned when the absorption of the lacteals, or of other absorbents, is prevented, either by an obstruction of their orifices, or by an obstruction of the mesenteric glands through which alone the absorbed fluids can be transmitted.

In one instance of this kind, when the chyle prepared in the stomach and duodenum is not absorbed in the course of the intestines, but passes off in considerable quantity by the anus, the disease has been named *Morbus Cæliacus*, or simply and more properly *Cæliaca*; which accordingly I have considered as a species of diarrhœa.

1495.] I have thus endeavored to point out the various species of disease that may come under the general appella-

tion of Diarrhœa ; and from that enumeration it will appear, that many, and indeed the greater part of the cases of diarrhœa, are to be considered as sympathetic affections, and to be cured only by curing the primary disease upon which they depend ; of which, however, I cannot properly treat here. From our enumeration it will also appear, that many of the cases of diarrhœa which may be considered as idiopathic, will not require my saying much of them here. In many instances, the disease is ascertained, and also the cause assigned, by the condition of the matter evacuated ; so that what is necessary to correct or remove it will be sufficiently obvious to practitioners of any knowledge. In short, I do not find that I can offer any general plan for the cure of diarrhœa ; and all that I can pretend to do on this subject, is to give some general remarks on the practice that has been commonly followed in the cure of this disease.

1496.] The practice in this disease has chiefly proceeded upon the supposition of an acrimony in the fluids, or of a laxity in the simple and moving fibres of the intestines ; and the remedies employed have accordingly been, Correctors of particular acrimony, general demulcents, evacuants by vomiting or purging, astringents, or opiates. Upon each of these kinds of remedies I shall now offer some remarks.

1497.] An acid acrimony is, upon several occasions, the cause of diarrhœa, particularly in children ; and in such cases the absorbent earths have been very properly employed. The common, however, and promiscuous use of these, hath been very injudicious ; and where there is any putrescency, they must be hurtful.

1498.] The cases in which there is a putrid or putrescent acrimony prevailing, have been, I think too seldom taken notice of ; and, therefore, the use of acids too seldom admitted. The acrimony to be suspected in bilious cases, is probably of the putrescent kind.

1499.] The general correctors of acrimony are the mild diluents and demulcents. The former have not been so much employed in diarrhœa as they ought ; for, joined with demulcents, they very much increase the effects of the latter : and although the demulcents, both mucilaginous and oily, may by themselves be useful, yet without the assistance of diluents they can hardly be introduced in such quantity as to answer the purpose.*

* Lintseed tea is both diluent and demulcent ; but as the patient sometimes loaths it, we may in its place use a decoction of marsh-mallow root, or of quince seed. These infusions and decoctions ought to be extremely thin. An ounce of bruised quince seed will make three pints

1500.] As indigestion and crudities present in the stomach are so often the cause of diarrhœa, vomiting must therefore be frequently very useful in this disease.

In like manner, when the disease proceeds, as it often does, from obstructed perspiration, and increased afflux of fluids to the intestines, vomiting is perhaps the most effectual means of restoring the determination of the fluids to the surface of the body.

It is possible also, that vomiting may give some inversion of the peristaltic motion, which is determined too much downwards in diarrhœa; so that upon the whole it is a remedy which may be very generally useful in this disease.*

1501.] Purging has been supposed to be more universally necessary, and has been more generally practised. This, however, in my opinion, proceeds upon very mistaken notions with respect to the disease; and such a practice seems to me for the most part superfluous, and in many cases very hurtful. It goes upon the supposition of an acrimony present in the intestines, that ought to be carried out by purging: but, if that acrimony has either been introduced by the mouth, or brought into the intestines from other parts of the body, purging can neither be a means of correcting nor of exhausting it; and must rather have the effect of increasing its afflux, and of aggravating its effects. From whatever source the acrimony which can excite a diarrhœa proceeds, it may be supposed sufficient to evacuate itself, so far as that can be done by purging; and as in cholera, so in the same kind of diarrhœa, it will be more proper to assist the evacuation by diluents and demulcents, than to increase the irritation by purgatives.

1502.] If, then, the use of purgatives in diarrhœa may be considered, even when an acrimony is present, as superfluous, there are many other cases in which it may be extremely hurtful. If the irritability of the intestines shall,

of water as thick and ropy as the white of an egg: hence a drachm is sufficient for a pint of the decoction.

We have another instance of a diluent and demulcent in the almond emulsion, which is an exceedingly elegant medicine. The formula in both the London and Edinburgh Pharmacopœias are not well adapted to cases of diarrhœa: for the former contains sugar, and the latter bitter almonds; both of which ingredients increase the irritation. In these cases, therefore, an emulsion made with sweet almonds and gum arabic, is preferable to either of the others: as,

R. Amygdal. dulc. decorticat. ʒi.

Gum Arabic. ʒi.

Tere in mortario marmoreo, et adde gradatim,

Aq. font. lb. i.

M. f. Emuls.

* The methods of giving the tartar emetic, for producing either vomiting or sweating, may be seen in the notes on article 185.

from affections in other parts of the system, or other causes, have been already very much increased, purgatives must necessarily aggravate the disease. In the case of lientery, nobody thinks of giving a purgative; and in many cases of diarrhœa approaching to that, they must be equally improper. I have already observed, that when diarrhœa proceeds from an afflux of fluids to the intestines, whether in too great quantity, or of an acrid quality, purgatives may be hurtful; and, whoever, therefore, considers the numerous and various sources from which acrid matter may be poured into the cavity of the intestines, will readily perceive, that in many cases of diarrhœa, purgatives may be extremely pernicious.

There is one case in particular to be taken notice of. When, from a general and acrid dissolution of the blood, the serous fluids run off too copiously in the cavity of the intestines, and excite that diarrhœa which attends the advanced state of hectic fever, and is properly called a Colliquative Diarrhœa; I have, in such cases, often seen purgatives given with the most baneful effects.

There is still another case of diarrhœa in which purgatives are pernicious; and that is, when the disease depends, as we have alledged it sometimes may, upon an erythematic inflammation of the intestines.

I need hardly add, that if there be a case of diarrhœa depending upon a laxity of the solids, purgatives cannot there be of any service, and may do much harm. Upon the whole, it will, I think, appear, that the use of purgatives in diarrhœa is very much limited; and that the promiscuous use of them, which has been so common, is injudicious, and often pernicious. I believe the practice has been chiefly owing to the use of purgatives in dysenteric cases, in which they are truly useful; because, contrary to the case of diarrhœa, there is in dysentery a considerable constriction of the intestines.*

1503.] Another set of remedies employed in diarrhœa are astringents. There has been some hesitation about the

* Notwithstanding all the author advances concerning the danger of purgatives in a diarrhœa, there are some cases in which they are of singular utility. His arguments in this article are doubtless just; and, in the species of diarrhœa which he here enumerates, purgatives are certainly hurtful; but many instances of diarrhœa occur, which proceed from an acrimony that is extremely tenacious, and that adheres closely to the internal surface of the intestines, or is retained in their folds. In such cases, purgatives are the only remedies for removing the disease, and ought therefore to be used. In all other cases, as the author justly observes, they are certainly pernicious. Having ascertained *when* purgatives are proper, the next consideration is, *what* purgatives ought to be used: The answer is obvious:—Neutral salts, particularly Soda phosphorata, Rochel salt, Glauber's salts, and Epsom salt, which are enumerated in the order of their being agreeable, but in a contrary order to their degree of efficacy; the Epsom salt being the least agreeable, but the most efficacious.

employment of these in recent cases, upon the supposition that they might occasion the retention of an acrid matter that should be thrown out. I cannot, however, well understand or assign the cases in which such caution is necessary and I think that the power of astringents is seldom so great as to render their use very dangerous.

The only difficulty which has occurred to me, with respect to their use, has been to judge of the circumstances to which they are especially adapted. It appears to me to be only in those where the irritability of the intestines depends upon a loss of tone; and this, I think, may occur from the debility of the whole system, or from causes acting on the intestines alone. All violent or long continued spasmodic and convulsive affections of the intestinal canal necessarily induce a debility there; and such causes often take place, from violent irritation, in colic, dysentery, cholera, and diarrhœa.*

1504.] The last of the remedies of diarrhœa that remain to be mentioned are opiates. The same objections have been made to the use of these, in recent cases of diarrhœa, as to that of astringents; but on no good grounds: for the effect of opiates, as astringent, is never very permanent; and an evacuation depending upon irritation, though it may be for some time suspended by opiates, yet always returns very soon. It is only by taking off irritability that opiates are useful in diarrhœa; and therefore, when the disease depends upon an increase of irritability alone, or when, though proceeding from irritation, that irritation is corrected or exhausted, opiates are the most useful and certain remedy. And though opiates are not suited to correct or remove an irritation applied, they are often of great benefit in suspending the effects of that irritation whenever these are violent:

* The astringents to be used, when they are proper, are various: as Alum, Logwood, Catechu, Rhubarb, &c. The author justly remarks, that astringents are only useful in cases of debility, and therefore the tonic astringents are undoubtedly preferable to any other. Rhubarb and Peruvian bark, each possessing both these qualities, may therefore be advantageously used conjointly, as in the following formula:

Rx. Pulv. Cort. Peruv. ʒi.

Rad. Rhei, ʒ ʒ

M. f. Pulv.

The dose of this powder may be varied according to circumstances, from a scruple to a drachm, twice a day, with a glass of Port wine after it. It may not be improper to observe, that in diarrhœas in general, peculiar attention must be paid to diet. The oleraceous and acescent vegetables must be carefully avoided; as must also all fermented liquors except Port wine: of the farinaceous vegetables, rice is the best; and rice-water, with a little cinnamon and Port wine, is the most proper drink for patients in these cases. Roasted meats are preferable to boiled; and veal, lamb, or chickens, preferable to beef or mutton. Pork is very improper; as are also all kinds of fish. Puddings of all kinds without fruit are very proper food for such patients, especially rice-puddings made without eggs, but with milk and cinnamon; and also rice-milk, sago with Port wine, blanc mange, &c.

and, upon the whole, it will appear, that opiates may be very frequently, and with great propriety, employed in the cure of diarrhœa.

CHAPTER XII.

OF THE DIABETES.

1505.] **T**HIS disease consists in the voiding of an unusually large quantity of urine.

As hardly any secretion can be increased without an increased action of the vessels concerned in it, and as some instances of this disease are attended with affections manifestly spasmodic, I have had no doubt of arranging the diabetes under the order of Spasmi.

1506.] This disease is always accompanied with a great degree of thirst, and therefore with the taking in of a great quantity of drink. This in some measure accounts for the very extraordinary quantities of urine voided: but still, independent of this, a peculiar disease certainly takes place; as the quantity of urine voided does almost always exceed the whole of the liquids, and sometimes the whole of both solids and liquids, taken in.

1507.] The urine voided in this disease is always very clear, and at first sight appears entirely without any color; but viewed in a certain light, it generally appears to be slightly tinged with a yellowish green, and in this respect has been very properly compared to a solution of honey in a large proportion of water.

Examined by the taste, it is very generally found to be more or less sweet; and many experiments that have now been made in different instances of the disease show clearly that such urine contains, in considerable quantity, a saccharine matter which appears to be very exactly of the nature of common sugar.

1508.] Doctor Willis seems to me to have been the first who took notice of the sweetness of the urine in diabetes, and almost every physician of England has since taken notice of the same. It is to be doubted, indeed, if there is any case of idiopathic diabetes in which the urine is of a different kind. Though neither the ancients, nor, in the other countries of Europe, the moderns, till the latter were directed to it by the English, have taken notice of the

sweetness of the urine, it does not persuade me, that either in ancient or in modern times the urine in diabetes was of another kind. I myself, indeed, think I have met with one instance of diabetes in which the urine was perfectly insipid ; and it would seem that a like observation had occurred to Dr. Martin Lister. I am persuaded, however, that such instances are very rare ; and that the other is by much the more common, and perhaps the almost universal occurrence. I judge, therefore, that the presence of such a saccharine matter may be considered as the principal circumstance in idiopathic diabetes ; and it gives at least the only case of that disease that I can properly treat of here, for I am only certain that what I am further to mention relates to such a case.

1509.] The antecedents of this disease, and consequently the remote causes of it, have not been well ascertained. It may be true that it frequently happens to men who, for a long time before, had been intemperate in drinking ; that it happens to persons of a broken constitution, or who, as we often express it, are in a cachectic state ; that it some times follows intermittent fevers ; and that it has often occurred from excess in drinking of mineral waters. But none of these causes apply very generally to the cases that occur : such cases are not always, nor even frequently, followed by a diabetes ; and there are many instances of diabetes ; which could not be referred to any of them. In most of the cases of this disease which I have met with, I could not refer it to any particular cause.

1510.] This disease commonly comes on slowly, and almost imperceptibly, without any previous disorder. It often arises to a considerable degree, and subsists long without being accompanied with evident disorder in any particular part of the system. The great thirst which always, and the voracious appetite which frequently, occur in it, are often the only remarkable symptoms. Under the continuance of the disease, the body is often greatly emaciated ; and a great weakness also prevails. The pulse is commonly frequent ; and an obscure fever is for the most part present. When the disease proves fatal, it generally ends with a fever, in many circumstances, particularly those of emaciation and debility, resembling a hectic.

1511.] The proximate cause of this disease is not certainly or clearly known. It seems to have been sometimes connected with calculous affections of the kidneys ; and it

is possible, that an irritation applied there may increase the secretion of urine. It perhaps often does so; but how it should produce the singular change that takes place in the state of the urine, is not to be easily explained. It certainly often happens, that calculous matters are long present in the urinary passages, without having any such effect as that of producing diabetes in any shape.

Some have supposed that the disease occurs from a relaxed state of the secretory vessels of the kidneys; and indeed the dissections of persons who had died of this disease have shown the kidneys in a very flaccid state. This however, is probably to be considered as rather the effect than the cause of the disease.

That no topical affection of the kidneys has a share in producing this disease, and that a fault in the assimilation of the fluids is rather to be blamed, I conclude from hence, that even the solid food taken in, increases the quantity of the urine voided, at the same time with an increase of the saccharine matter above-mentioned.

1512.] The diabetes has been supposed to be owing to a certain state of the bile: and it is true, that this disease has sometimes occurred in persons who were at the same time affected with diseases of the liver: but this occurrence does not often take place; and the diabetes frequently occurs separately from any affection of the liver. In twenty instances of diabetes which I have seen, there was not in any one of them any evident affection of the liver.

The explanation that has been offered of the nature and operation of the bile, in producing diabetes, is very hypothetical, and no wise satisfying.

1513.] As I have already said, I think it probable, that in most cases the proximate cause of this disease is some fault in the assimilatory powers, or in those employed in converting alimentary matters into the proper animal fluids. This I formerly hinted to Dr. Dobson, and it has been prosecuted and published by him; but I must own that it is a theory embarrassed with some difficulties which I cannot at present very well remove.

1514.] The proximate cause of diabetes being so little known or ascertained, I cannot propose any rational method of cure in the disease.* From the testimony of several

* The disease is happily not very common: but, when a physician is called, he is under the necessity of doing something, and not remaining inactive. Some general directions may therefore be acceptable to the young practitioner. The cure will principally consist in avoiding whatever may relax the renal vessels, especially by avoiding strong drink. As the quantity of urine is always less in proportion as the perspiration is increased, it seems advisable to keep

authors, I believe that the disease has been cured : but I believe also, that this has seldom happened ; and when the disease has been cured, I doubt much if it was effected by the several remedies to which these cures have been ascribed. In all the instances of this disease which I myself have seen, and in several others of which I have been informed, no cure of it has ever been made in Scotland, though many instances of it have occurred, and in most of them the remedies recommended by authors have been diligently employed. I cannot, therefore, with any advantage, enter into a detail of these remedies ; and as the disease, together with its several circumstances, when they shall hereafter occur, is likely to become the subject of diligent investigation, I avoid going farther at present, and judge it prudent to suspend my opinion till I shall have more observations and experiments upon which I can form it more clearly.

CHAPTER XIII.

OF THE HYSTERIA, OR THE HYSTERIC DISEASE.

1515.] **T**HE many and various symptoms which have been supposed to belong to a disease under this appellation, render it extremely difficult to give a general character or definition of it. It is, however, proper in all cases to attempt some general idea ; and therefore, by taking the most common form, and that concurrence of symptoms by which it is principally distinguished, I have formed a character in my system of Methodical Nosology, and shall here endeavor to illustrate it by giving a more full history of the phenomena.

1516.] The disease attacks in paroxysms or fits. These commonly begin by some pain and fulness felt in the left side of the belly. From this a ball* seems to move with a grumbling noise into the other parts of the belly ; and, making as it were various convolutions there, seems to move into the stomach ; and more distinctly still rises up to

the surface of the skin lax and perspirable ; and, if the patient's strength allows him, he ought frequently to use bodily exercise to promote sweat. For a similar reason, external cold must be avoided, because by diminishing perspiration, a larger quantity of fluids is derived to the kidneys. In some cases the disease may be probably owing to a lax or weak state of the kidneys : hence the indication of tonics, as Peruvian bark, and other tonic bitters.

* Commonly called *Globus hystericus* by authors.

the top of the gullet, where it remains for some time and by its pressure upon the larynx gives a sense of suffocation. By the time that the disease has proceeded thus far, the patient is affected with a stupor and insensibility, while at the same time the body is agitated with various convulsions. The trunk of the body is wreathed to and fro, and the limbs are variously agitated; commonly the convulsive motion of one arm and hand, is that of beating with the closed fist, upon the breast very violently and repeatedly. This state continues for some time, and has during that time some remissions and renewals of the convulsive motions; but they at length cease, leaving the patient in a stupid and seemingly sleeping state. More or less suddenly, and frequently with repeated sighing and sobbing, together with a murmuring noise in the belly, the patient returns to the exercise of sense and motion, but generally without any recollection of the several circumstances that had taken place during the fit.

1517.] This is the form of what is called an *hysteric paroxysm*, and is the most common form; but its paroxysms are considerably varied in different persons, and even in the same person at different times. It differs, by having more or fewer of the circumstances above-mentioned; by these circumstances being more or less violent; and by the different duration of the whole fit.

Before the fit there is sometimes a sudden and unusually large flow of limpid urine. At the coming on of the fit, the stomach is sometimes affected with vomiting, the lungs with considerable difficulty of breathing, and the heart with palpitations. During the fit, the whole of the belly, and particularly the navel, is drawn strongly inwards; the spincter ani is sometimes so firmly constricted as not to admit a small glyster-pipe, and there is at the same time an entire suppression of urine. Such fits are, from time to time, ready to recur; and during the intervals, the patients are liable to involuntary motions, to fits of laughing and crying, with sudden transition from the one to the other; while sometimes false imaginations, and some degree of delirium, also occur.

1518.] These affections have been supposed peculiar to the female sex; and indeed they most commonly appear in females: but they sometimes, though rarely, attack also the male sex; never, however, that I have observed, in the same exquisite degree.

In the female sex, the disease occurs especially from the age of puberty to that of thirty-five years ; and though it does sometimes, yet it very seldom appears before the former or after the latter of these periods.

At all ages, the time at which it most readily occurs is that of the menstrual period.

The disease more especially affects the females of the most exquisitely sanguine and plethoric habits, and frequently affects those of the most robust and masculine constitutions.

It affects the barren more than the breeding women, and therefore frequently young widows.

It occurs especially in those females who are liable to the Nymphomania ; and the Nosologists have properly enough marked one of the varieties of this disease by the title of *Hysteria Libidinosa*.

In the persons liable to the fits of this disease, it is readily excited by the passions of the mind, and by every considerable emotion, especially those brought on by surprise.

The persons liable to this disease acquire often such a degree of sensibility, as to be strongly affected by every impression that comes upon them by surprise.

1519.] In this history, there appears to be a concurrence of symptoms and circumstances properly marking a very particular disease, which I think may be distinguished from all others. It seems to me to have been improperly considered by physicians as the same with some other diseases, and particularly with hypochondriasis. The two diseases may have some symptoms in common, but for the most part are considerably different.

Spasmodic affections occur in both diseases : but neither so frequently, nor to so great a degree, in hypochondriasis as in hysteria.

Persons liable to hysteria are sometimes affected at the same time with dyspepsia. They are often, however, entirely free from it ; but I believe this never happens to persons affected with hypochondriasis.

These different circumstances mark some difference in the two diseases ; but they are still more certainly distinguished by the temperament* they attack, and by the time† of life at which they appear to be most exquisitely formed.

It has been generally supposed, that the two diseases dif-

* Hysteria attacks the sanguine and plethoric, but Hypochondriasis the melancholic.

† Hypochondriasis scarcely ever appears early in life, nor Hysteria late : and Hypochondriasis becomes aggravated, but Hysteria relieved by advancing age.

fer only in respect of their appearing in different sexes. But this is not well founded : for although the hysteria appears most commonly in females, the male sex is not absolutely free from it, as I have observed above ; and although the hypochondriasis may be most frequent in men, the instances of it in the female sex are very common.*

1520.] From all these considerations, it must, I think, appear, that the hysteria may be very well, and properly, distinguished from hypochondriasis.

Further, it seems to me to have been with great impropriety, that almost every degree of the irregular motions of the nervous system has been referred to the one or other of these two diseases, Both are marked by a peculiarity of temperament, as well as by certain symptoms commonly accompanying that ; but some of these, and many others usually marked by the name of nervous symptoms may, from various causes, arise in temperaments different from that which is peculiar to either hysteria or hypochondriasis, and without being joined with the peculiar symptoms of either the one or the other disease : so that the appellations of Hysteric and Hypochondriac are very inaccurately applied to them. Under what view these symptoms are otherwise to be considered, I am not ready to determine ; but must remark, that the appellation of Nervous Diseases is too vague and undefined to be of any useful application.

1521.] Having thus endeavored to distinguish hysteria from every other disease, I shall now attempt its peculiar pathology. With respect to this, I think it will, in the first place, be obvious, that its paroxysms begin by a convulsive and spasmodic affection of the alimentary canal, which is afterwards communicated to the brain, and to a great part of the nervous system. Although the disease appears to begin in the alimentary canal, yet the connection which the paroxysms so often have with the menstrual flux, and with the diseases that depend on the state of the genitals, shows, that the physicians have at all times judged rightly in considering this disease as an affection of the uterus and other parts of the genital system.

1522.] With regard to this, however, I can go no farther. In what manner the uterus, and in particular the ovaria, are affected in this disease ; how the affection of these is communicated, with particular circumstances, to the alimen-

* The Hypochondriasis in women has been frequently mistaken for Hysteria.

tary canal ; or how the affection of this, rising upwards, affects the brain, so as to occasion the particular convulsions which occur in this disease, I cannot pretend to explain.

But although I cannot trace this disease to its first causes, or explain the whole of the phenomena, I hope, that with respect to the general nature of the disease, I may form general conclusions, which may serve to direct our conduct in the cure of it.

1523.] Thus, from a consideration of the predisponent and occasional causes, it will, I think, appear, that the chief part of the proximate cause is a mobility of the system, depending generally upon its plethoric state.

1524.] Whether this disease ever arises from a mobility of the system, independent of any plethoric state of it, I cannot positively determine ; but in many cases that have subsisted for some time, it is evident that a sensibility, and consequently a mobility, are acquired, which often appear when neither a general plethora can be supposed to subsist, nor an occasional turgescence to have happened. However, as we have shown above, that a distension of the vessels of the brain seems to occasion epilepsy, and that a turgescence of the blood in the vessels of the lungs seems to produce asthma ; so analogy leads me to suppose, that a turgescence of blood in the uterus, or in other parts of the genital system, may occasion the spasmodic and convulsive motions which appear in hysteria. It will, at the same time, be evident, that this affection of the genitals must especially occur in plethoric habits ; and every circumstance mentioned in the history of the disease serves to confirm this opinion with respect to its proximate cause.

1525.] From this view of the subject, the analogy of hysteria and epilepsy will readily appear ; and why, therefore, I am to say that the indications of cure are the same in both.

As the indications, so the several means of answering them are so much the same in both diseases, that the same observations and directions, with regard to the choice and employment of these remedies, that have been delivered above on the subject of epilepsy, will apply pretty exactly to hysteria ; and therefore need not to be repeated here.*

* Although the indications of cure may be the same in both diseases, yet in hysteria we are more frequently under the necessity of relieving the violence of the symptoms than in epilepsy ; and for this purpose we must have recourse to a variety of antispasmodics.—Asafoetida, in various forms, is usually employed ; as are also volatile spirits : but both these joined prove more

CHAPTER XIV.

OF CANINE MADNESS AND HYDROPHOBIA.

1526. **T**HIS disease has been so exactly and fully described in books that are in every body's hands, that it is on no account necessary for me to give any history of it here; and with respect to the pathology of it, I find that I can say nothing satisfying to myself, or that I can expect to prove so to others. I find also, with respect to the cure of this disease, that there is no subject in which the fallacy of experience appears more strongly than in this. From the most ancient to the present times, many remedies for preventing and curing this disease have been recommended under the sanction of pretended experience, and have perhaps also kept their credit for some time: but succeeding times have generally, upon the same ground of experience, destroyed that credit entirely; and most of the remedies formerly employed are now fallen into absolute neglect. In the present age, some new remedies have been proposed, and have experience alledged to vouch for their efficacy; but many doubts still remain with respect to this: and though I cannot determine in this matter from my own experience, I think it incumbent on me to give the best

efficacious than either of them singly. There are excellent formulæ of this kind in the London and Edinburgh Pharmacopœias, under the title of *Spiritus Ammoniacæ fetidus*. Its dose is twenty or thirty drops, repeated according to the urgency of the case, several times a day.—The *Tinctura Castorei composita* of the Edinburgh Pharmacopœia is another excellent formula of the same kind: it is a remedy of real efficacy. The dose of it is thirty or forty drops repeated occasionally.—The *Tinctura Valerianæ volatilis* of both the Pharmacopœias is also frequently used. Its dose is a tea-spoonful or two.—Few of the compositions of the shops are found to be more efficacious antispasmodics than the *Spiritus Ætheris Vitriolici compositus* of the London Pharmacopœia. Its dose is from thirty to fifty drops in two or three spoonfuls of cold water; and it must be swallowed immediately on pouring out of the vial.—These and other antispasmodics may be used promiscuously: for, in different cases and constitutions, they prove differently efficacious. Sometimes they may be variously combined with one another, and with opium. Opium, however, ought not to be used, except where other antispasmodics fail, as it always leaves the patient remarkably low, and liable to returns of the paroxysm.—Besides the use of these remedies internally, some of them may be usefully employed externally; as strong volatile spirits to the nose, the vitriolic æther to the temples, &c.—These remedies are chiefly designed for occasionally removing the violence of symptoms; but the fetid gums, in substance, must be used, when we wish to produce permanent effects. The formulæ of them are in both our Pharmacopœias, under the title of Gum-pills; but they will be found much more efficacious by adding to them a little castor, as in the following formula:

R. Pilul. Gummos. Edinb. ʒ℥.

Castor. Russic. ʒi.

Syr. simpl. q. s.

M. f. mass. in pilulas lxxv. equales dividend.

Five of these pills may be taken twice a day, washing them down with a tea-cupful of cold water with a tea-spoonful of volatile tincture of valerian in it.—The *Pilulæ fetidæ* of the Swedish Pharmacopœia, in which castor is one of the ingredients, is preferable to either of our gum-pills.

judgment I can form with respect to the choice of the remedies at present recommended.

1527.] I am in the first place, firmly persuaded, that the most certain means of preventing the consequences of the bite, is to cut out, or otherwise destroy, the part in which the bite has been made. In this every body agrees; but with this difference, that some are of opinion that it can only be effectual when it is done very soon after the wound has been made, and they therefore neglect it when this opportunity is missed. There have been, however, no experiments made proper to determine this matter: and there are many considerations which lead me to think, that the poison is not immediately communicated to the system; and therefore, that this measure of destroying the part may be practised with advantage, even many days after the bite has been given.

1528.] Whilst the state of our experience, with respect to several remedies now in use, is uncertain, I cannot venture to assert that any of these is absolutely ineffectual; but I can give it as my opinion, that the efficacy of mercury, given very largely, and persisted in for a long time, both as a means of preventing the disease, and of curing it when it has actually come on, is better supported by experience than that of any other remedy now proposed or commonly employed.

BOOK IV.

OF VESANIÆ, OR OF THE DISORDERS OF THE INTELLECTUAL FUNCTIONS.

CHAPTER I.

OF VESANIÆ IN GENERAL.

1529.] **T**HE Nosologists, Sauvages, and Sagar, in a class of diseases under the title of VESANIÆ, have comprehended the two orders, of *Hallucinationes* or False Perceptions, and of *Morositates* or Erroneous Appetites and Passions; and, in like manner, Linnæus in his class of MENTALES, corresponding to the Vesaniæ of Sau-

vages, has comprehended the two orders of *Imaginarii* and *Pathetici*, nearly the same with the *Hallucinationes* and *Morositates* of that author. This, however, from several considerations, appears to me improper ; and I have therefore formed a class of *Vesaniæ* nearly the same with the *Paranoïæ* of Vogel, excluding from it the *Hallucinationes* and *Morositates*, which I have referred to the *Morbi Locales*. Mr. Vogel has done the like, in separating from the *Paranoïæ* the false perceptions and erroneous appetites ; and has thrown these into another class, to which he has given the title of *Hyperæstheses*.

1530.] It is indeed true, that certain hallucinationes and morositates are frequently combined with what I propose to consider as strictly a *vesania* or an erroneous judgment ; and sometimes the hallucinationes seem to lay the foundation of, and to form almost entirely, the *vesania*. But as most part of the hallucinationes enumerated by the Nosologists are affections purely topical, and induce no other error of judgment beside that which relates to the single object of the sense or particular organ affected ; so these are certainly to be separated from the diseases which consist in a more general affection of the judgment. Even when the hallucinationes constantly accompany or seem to induce the *vesania*, yet being such as arise from internal causes, and may be presumed to arise from the same cause as the more general affection of the judgment, they are therefore to be considered as symptoms of this only.

In like manner I judge with respect to the morositates, or erroneous passions, that accompany *vesania* ; which, as consequences of a false judgment, must be considered as arising from the same causes, and as symptoms only, of the more general affection.

There is, indeed, one case of a morositas which seems to induce a *vesania*, or more general affection of the judgment ; and this may lead us to consider the *vesania*, in this case, as a symptom of an erroneous appetite, but will not afford any good reason for comprehending the morositates in general under the *vesaniæ*, considered as primary diseases.

The limitation, therefore, of the class of *Vesaniæ* to the lesions of our judging faculty, seems from every consideration to be proper.

The particular diseases to be comprehended under this class, may be distinguished according as they affect persons in the time of waking or sleeping. Those which affect men

awake, may again be considered, as they consist in an erroneous judgment, to which I shall give the appellation of *Delirium*; or as they consist in a weakness or imperfection of judgment, which I shall name *Fatuity*. I begin with the consideration of *Delirium*.

1531.] As men differ greatly in the soundness and force of their judgment, so it may be proper here to ascertain more precisely what error or imperfection of our judging faculty is to be considered as morbid, and to admit of the appellations of *Delirium* and *Fatuity*. In doing this, I shall first consider the morbid errors of judgment under the general appellation of *Delirium*, which has been commonly employed to denote every mode of such error.

1532.] As our judgment is chiefly exercised in discerning and judging of the several relations of things, I apprehend that delirium may be defined to be,—In a person awake, a false or mistaken judgment of those relations of things, which, as occurring most frequently in life, are those about which the generality of men form the same judgment; and particularly when the judgment is very different from what the person himself had before usually formed.

1533.] With this mistaken judgment of relations there is frequently joined some false perception of external objects, without any evident fault in the organs of sense, and which seems therefore to depend upon an internal cause; that is, upon the imagination arising from a condition in the brain presenting objects which are not actually present. Such false perceptions must necessarily occasion a delirium, or an erroneous judgment, which is to be considered as the disease.

1534.] Another circumstance, commonly attending delirium, is a very unusual association of ideas. As, with respect to most of the affairs of common life, the ideas laid up in the memory are, in most men, associated in the same manner; so a very unusual association, in any individual, must prevent his forming the ordinary judgment of those relations which are the most common foundation of association in the memory: and therefore this unusual and commonly hurried association of ideas, usually is, and may be considered as, a part of delirium. In particular it may be considered as a certain mark of a general morbid affection of the intellectual organs, it being an interruption or

perversion of the ordinary operations of memory, the common and necessary foundation of the exercise of judgment.

1535.] A third circumstance attending delirium, is an emotion or passion, sometimes of the angry, sometimes of the timid kind; and from whatever cause in the perception or judgment, it is not proportioned to such cause, either in the manner formerly customary to the person himself, or in the manner usual with the generality of other men.

1536.] Delirium, then, may be more shortly defined—In a person awake, a false judgment arising from perceptions of imagination, or from false recollection, and commonly producing disproportionate emotions.

Such delirium is of two kinds; as it is combined with pyrexia and comatose affections; or, as it is entirely without any such combination. It is the latter case that we name *Insanity*; and it is this kind of delirium only that I am to treat of here.

1537.] Insanity may perhaps be properly considered as a genus comprehending many different species, each of which may deserve our attention; but before proceeding to the consideration of particular species, I think it proper to attempt an investigation of the cause of insanity in general.

1538.] In doing this, I shall take it for granted, as demonstrated elsewhere, that although this disease seems to be chiefly, and sometimes solely, an affection of the mind; yet the connection between the mind and body in this case is such, that these affections of the mind must be considered as depending upon a certain state of our corporeal part. See Halleri Prim. Lin. Physiolog. § 570. See Boerhaavii Inst. Med. § 581. 696.

1539.] Admitting this proposition, I must in the next place assume another, which I likewise suppose to be demonstrated elsewhere. This is, that the part of our body more immediately connected with the mind, and therefore more especially concerned in every affection of the intellectual functions, is the common origin of the nerves; which I shall, in what follows, speak of under the appellation of the Brain.

1540.] Here, however, in assuming this last proposition, a very great difficulty immediately presents itself. Altho' we cannot doubt that the operations of our intellect always depend upon certain motions taking place in the brain, (see Gaub. Peth. Med. § 523;) yet these motions have never

been the objects of our senses, nor have we been able to perceive that any particular part of the brain has more concern in the operations of our intellect than any other. Neither have we attained any knowledge of what share the several parts of the brain have in that operation ; and therefore, in this situation of our science, it must be a very difficult matter to discover those states of the brain that may give occasion to the various state of our intellectual functions.

1541.] It may be observed, that the different state of the motion of the blood in the vessels of the brain has some share in affecting the operations of the intellect : and physicians, in seeking for the causes of the different states of our intellectual functions, have hardly looked further than into the state of the motion of the blood, or into the condition of the blood itself: but it is evident that the operations of the intellectual functions ordinarily go on, and are often considerably varied, without our being able to perceive any difference either in the motions or in the conditions of the blood.

1542.] Upon the other hand, it is very probable that the state of the intellectual functions depends chiefly upon the state and condition of what is termed the Nervous Power, or, as we suppose, of a subtile very moveable fluid, included or inherent, in a manner we do not clearly understand in every part of the medullary substance of the brain and nerves, and which in a living and healthy man is capable of being moved from every one part to every other of the nervous system.

1543.] With respect to this power, we have pretty clear proof that it frequently has a motion from the sentient extremities of the nerves towards the brain, and thereby produces sensation ; and we have the same proof, that in consequence of volition the nervous power has a motion from the brain into the muscles or organs of motion. Accordingly, as sensation excites our intellectual operations, and volition is the effect of these, and as the connection between sensation and volition is always by the intervention of the brain and of intellectual operations ; so we can hardly doubt, that these latter depend upon certain motions, and the various modification of these motions, in the brain.

1544.] To ascertain the different states of these motions may be very difficult ; and physicians have commonly considered it to be so very mysterious, that they have generally despaired of attaining any knowledge with regard to it : but I consider such absolute despair, and the negligence it

inspires, to be always very blameable ; and I shall now venture to go some length in the inquiry, hoping that some steps made with tolerable firmness may enable us to go still further.

1545.] To this purpose, I think it evident, that the nervous power, in the whole as well as in the several parts of the nervous system, and particularly in the brain, is at different times in different degrees of mobility and force. To these different states, I beg leave to apply the terms of *Excitement* and *Collapse*. To that state in which the mobility and force are sufficient for the exercise of the functions, or when these states are any way preternaturally increased, I give the name of *Excitement* ; and to that state in which the mobility and force are not sufficient for the ordinary exercise of the functions, or when they are diminished from the state in which they had been before, I give the name of *Collapse*. I beg, however, it may be observed, that by these terms I mean to express matters of fact only ; and without intending, by these terms, to explain the circumstance or condition, mechanical or physical, of the nervous power or fluid in these different states.

1546.] That these different states of excitement and collapse take place on different occasions, must, I think, be manifest from numberless phenomena of the animal economy : but it is especially to our present purpose to observe, that the different states of excitement and collapse, are in no instance more remarkable, than in the different states of waking and sleeping. In the latter, when quite complete, the motion and mobility of the nervous power, with respect to the whole of what are called the Animal Functions, entirely cease, or, as I would express it, are in a state of collapse ; and are very different from the state of waking, which in healthy persons I would call a state of general and entire excitement.

1547.] This difference in the states of the nervous power in sleeping and waking being admitted, I must in the next place observe, that when these states are changed from the one into the other, as commonly happens every day, the change is hardly ever made instantaneously, but almost always by degrees, and in some length of time only : and this may be observed with respect to both sense and motion. Thus when a person is falling asleep, the sensibility is gradually diminished : so that, although some degree of sleep has come on, slight impressions will excite sensation, and

bring back excitement ; which the same, or even stronger impressions, will be insufficient to produce when the state of sleep has continued longer, and is, as we may say, more complete. In like manner, the power of voluntary motion is gradually diminished. In some members it fails sooner than in others ; and it is sometime before it becomes general and considerable over the whole.

The same gradual progress may be remarked in a person's coming out of sleep : the ears in this case are often awake before the eyes are opened or see clearly, and the senses are often awake before the power of voluntary motion is recovered ; and it is curious to observe, that, in some cases, sensations may be excited without producing the ordinary association of ideas. See *Mem. de Berlin*, 1752.

1548.] From all this, I think it will clearly appear, that not only the different states of excitement and collapse can take place in different degrees, but that they can take place in different parts of the brain, or at least, with respect to the different functions, in different degrees.

As I presume that almost every person has perceived the gradual approach of sleeping and waking, I likewise suppose every person has observed, that, in such intermediate state of unequal excitement, there almost always occurs more or less of delirium, or dreaming, if any body chooses to call it so. There are in this state false perceptions, false associations, false judgments, and disproportionate emotions ; in short, all the circumstances by which I have above defined delirium.

This clearly shows that delirium may depend, and I shall hereafter endeavor to prove that it commonly does depend upon some inequality in the excitement of the brain ; and that both these assertions are founded on this, that, in order to the proper exercise of our intellectual functions, the excitement must be complete, and equal in every part of the brain. For though we cannot say that the vestiges of ideas are laid up in different parts of the brain, or that they are in some measure diffused over the whole, it will follow upon either supposition, that as our reasoning and our intellectual operations always require the orderly and exact recollection or memory of associated ideas ; so, if any part of the brain is not excited, or not excitable, that recollection cannot properly take place, while at the same time

other parts of the brain, more excited and excitable, may give false perceptions, associations, and judgments.

1549.] It will serve to illustrate this, that the collapse in sleep is more or less complete ; or that the sleep, as we commonly speak, is more or less profound ; and therefore, that in many cases, though sleep takes place to a considerable degree, yet certain impressions do still take effect, and excite motions, or, if you will, sensations in the brain ; but which sensations, upon account of the collapsed state of so great a part of the brain, are generally of the delirious kind, or dreams, consisting of false perceptions, associations, and judgments, that would have been corrected if the brain had been entirely excited.

Every one, I believe, has observed, that the most imperfect sleeps, are those chiefly attended with dreaming ; that dreams, therefore, most commonly occur towards morning, when the complete state of sleep is passing away ; and further, that dreams are most commonly excited by strong and uneasy impressions made upon the body.

I apprehend it may also be an illustration of the same thing, that, even in waking hours, we have an instance of an unequal state of excitement in the brain producing delirium. Such, I think, occurs in the case of fever. In this it is manifest, that the energy of the brain, or its excitement, is considerably diminished with respect to the animal functions : and it is accordingly upon this ground that I have explained above, in 45, the delirium which so commonly attends fever. To what I have there said I shall here only add, that it may serve to confirm my doctrine, that the delirium in fever comes on at a certain period of the disease only, and that we can commonly discern its approach by a more than usual degree of it appearing in the time of the patient's falling into or coming out of sleep. It appears, therefore, that delirium, when it first comes on in fever, depends upon an inequality of excitement ; and it can hardly be doubted, that the delirium which comes at length to prevail in the entirely weakened state of fevers, depends upon the same cause prevailing in a more considerable degree.

1550.] From what has been now delivered, I hope it will be sufficiently evident, that delirium may be, and frequently is, occasioned by an inequality in the excitement of the brain.

How the different portions of the brain may at the same time be excited or collapsed in different degrees, or how the

energy of the brain may be in different degrees of force, with respect to the several animal, vital, and natural functions, I cannot pretend to explain; but it is sufficiently evident in fact, that the brain may be at one and the same time in different conditions with respect to these functions. Thus in inflammatory diseases, when by a stimulus applied to the brain the force of the vital functions is preternaturally increased, that of the animal is either little changed, or considerably diminished. On the contrary, in many cases of mania, the force of the animal functions depending always on the brain, is prodigiously increased, while the state of the vital function in the heart, is very little or not at all changed. I must therefore say again, that how difficult soever it may be to explain the mechanical or physical condition of the brain in such cases, the facts are sufficient to show that there is such an inequality as may disturb our intellectual operations.

1551.] I have thus endeavored to explain the general cause of Delirium; which is of two kinds, according as it is with, or without, pyrexia. Of the first I take no further notice here, having explained it as well as I could above in 45.

I proceed now to consider that delirium which properly belongs to the class of *Vesaniæ*, and which I shall treat of under the general title of *Insanity*.

1552.] In entering upon this subject, it immediately occurs, that in many instances of insanity, we find, upon dissection after death, that peculiar circumstances had taken place in the general condition of the brain. In many cases, it has been found of a drier, harder, and firmer consistence, than what it is usually of in persons who had not been affected with that disease. In other cases it has been found in a more humid, soft, and flaccid state; and in the observations of the late Mr. Meckel,* it has been found considerably changed in its density or specific gravity. Whether these different states have been observed to be uniformly the same over the whole of the brain, I cannot certainly learn; and I suspect the dissectors have not always accurately inquired into this circumstance: but in several instances, it appears that these states had been different in different parts of the brain; and instances of this inequality will afford a confirmation of our general doctrine.

* *Memoir de Berlin pour l'annee 1764.* It appeared in many instances of insane persons, that the medullary substance of the cerebrum was drier, and of a less specific gravity, than in persons who had been always of a sound judgment. *Author.*

The accurate Morgagni has observed, that in maniacal persons the medullary portion of the brain is usually dry, hard, and firm : and this he had so frequently observed, that he was disposed to consider it as generally the case. But in most of the particular instances which he has given, it appears, that, for the most part, while the cerebrum was of an unusually hard and firm consistence, the cerebellum was of its usual softness, and in many of the cases it was unusually soft and flaccid. In some other cases, Morgagni observes, that while a part of the cerebrum was harder and firmer than ordinary, other parts of it were preternaturally soft.

1553.] These observations tend to confirm our general doctrine : and there are others which I think will apply to the same purpose.

Upon the dissection of the bodies of persons who had labored under insanity, various organic affections have been discovered in particular parts of the brain ; and it is sufficiently probable, that such organic affections might have produced a different degree of excitement in the free and affected parts, and must have interrupted in some measure the free communication between the several parts of the brain, and in either way have occasioned insanity.

There have occurred so many instances of this kind, that I believe physicians are generally disposed to suspect organic lesions of the brain to exist in almost every case of insanity.

1554.] This, however, is probably a mistake : for we know that there have been many instances of insanity, from which the persons have entirely recovered ; and it is difficult to suppose that any organic lesions of the brain had in such case taken place. Such transitory cases, indeed, render it probable, that a state of excitement, changeable by various causes, had been the cause of such instances of insanity.

1555.] It is indeed further asserted, that in many instances of insane persons, their brain had been examined after death, without showing that any organic lesions had before subsisted in the brain, or finding that any morbid state of the brain then appeared. This, no doubt, may serve to show, that organic lesions had not been the cause of the disease ; but it does not assure us that no morbid change had taken place in the brain : for it is probable, that the dissectors were not always aware of its being the general condition of hardness and density, as different in different parts of the

brain, that was to be attended to, in order to discover the cause of the preceding disease; and therefore many of them had not with this view examined the state of the brain, as Morgagni seems carefully to have done.

1556.] Having thus endeavored to investigate the cause of insanity in general, it were to be wished that I could apply the doctrine to the distinguishing the several species of it, according as they depend upon the different state and circumstances of the brain, and thereby to the establishing of a scientific and accurately adapted method of cure. These purposes, however, appear to me to be extremely difficult to be attained; and I cannot hope to execute them here. All I can do is to make some attempts, and offer some reflections, which further observation, and greater sagacity, may hereafter render more useful.

1557.] The ingenious Dr. Arnold has been commendably employed in distinguishing the different species of insanity as they appear with respect to the mind; and his labors may hereafter prove useful, when we shall come to know something more of the different states of the brain corresponding to these different states of the mind; but at present I can make little application of his numerous distinctions. It appears to me that he has chiefly pointed out and enumerated distinctions, that are merely varieties, which can lead to little or no variety of practice: and I am especially led to form the latter conclusion, because these varieties appear to me to be often combined together, and to be often changed into one another, in the same person; in whom we must therefore suppose a general cause of the disease, which, so far as it can be known, must establish the pathology, and especially direct the practice.

1558.] In my limited views of the different states of insanity, I must go on to consider them under the two heads of Mania and Melancholia: and though I am sensible that these two genera do not comprehend the whole of the species of insanity, I am not clear in assigning the other species which may not be comprehended under those titles. I shall, however, endeavor, on proper occasions as I go along, to point them out as well as I can.

CHAPTER II.

OF MANIA, OR MADNESS.

1559.] **T**HE circumstances which I have mentioned above in 1536, as constituting delirium in general, do more especially belong to that kind of it which I shall treat of here under the title of *MANIA*.

There is sometimes a false perception or imagination of things present that are not ; but this is not a constant, nor even a frequent, attendant of the disease. The false judgment, is of relations long before laid up in the memory. It very often turns upon one single subject ; but more commonly the mind rambles from one subject to another with an equally false judgment concerning the most part of them ; and as at the same time there is commonly a false association, this increases the confusion of ideas, and therefore the false judgments. What for the most part more especially distinguishes the disease is a hurry of mind, in pursuing any thing like a train of thought, and in running from one train of thought to another. Maniacal persons are in general very irascible ; but what more particularly produces their angry emotions, is, that their false judgments lead to some action which is always pushed with impetuosity and violence ; when this is interrupted or restrained, they break out into violent anger and furious violence against every person near them, and upon every thing that stands in the way of their impetuous will. The false judgment often turns upon a mistaken opinion of some injury supposed to have been formerly received, or now supposed to be intended : and it is remarkable, that such an opinion is often with respect to their former dearest friends and relations ; and therefore their resentment and anger are particularly directed towards these. And although this should not be the case, they commonly soon lose that respect and regard which they formerly had for their friends and relations. With all these circumstances, it will be readily perceived, that the disease must be attended very constantly with that incoherent and absurd speech we call raving. Further, with the circumstances mentioned, there is commonly joined an unusual force in all the voluntary motions ; and an insensibility or resistance of the force of all impressions, and particularly a resistance of

the powers of sleep, of cold, and even of hunger ; though indeed in many instances a voracious appetite takes place.

1560.] It appears to me that the whole of these circumstances and symptoms point out a considerable and unusual excess in the excitement of the brain, especially with respect to the animal functions ; and it appears at the same time to be manifestly in some measure unequal, as it very often takes place with respect to these functions alone, while at the same time the vital and natural are commonly very little changed from their ordinary healthy state.

1561.] How this excess of excitement is produced, it may be difficult to explain. In the various instances of what Sauvages has named the Mania *Metastatica*, and in all the instances I have mentioned in my Nosology under the title of the Mania *Corporea*, it may be supposed that a morbid organic affection is produced in some part of the brain : and how that may produce an increased or unequal excitement in certain parts of it, I have endeavored to explain above in 1553. But I must at the same time acknowledge, that such remote causes of mania have very rarely occurred ; and that therefore some other causes of the disease must be sought for.

The effects of violent emotions or passions of the mind have more frequently occurred as the remote causes of mania ; and it is sufficiently probable, that such violent emotions, as they do often immediately produce a temporary increase of excitement, so they may, upon some occasions of their permanent inherence or frequent repetition, produce a more considerable and more permanent excitement, that is, a mania.

With respect to those causes of mania which arise in consequence of a melancholia which had previously long subsisted ; whether we consider that melancholia as a partial insanity, or as a long persisting attachment to one train of thinking, it will be readily perceived, that in either case, such an increase of excitement may take place in so considerable a degree, and in so large a portion of the brain, as may give occasion to complete mania.

1562.] These considerations with regard to the remote causes appear to me to confirm sufficiently our general doctrine of increased and unequal excitement in the mania which I have described above ; but I must own that I have not exhausted the subject, and that there are cases of mania of which I cannot assign the remote causes : but although I

cannot in all cases explain in what manner the mania is produced, I presume, from the explanation given, and especially from the symptoms enumerated above, to conclude, that the disease described above depends upon an increased excitement of the brain; an opinion in which I am the more confirmed, as I think it will point out the proper method of cure. At least I think it will most clearly explain the operation of those remedies, which, so far as I can learn from my own experience and that of others, have proved the most successful in this disease; and, to illustrate this, I now enter upon the consideration of these remedies, and to make some remarks upon the proper manner of employing them.

1563.] Restraining the anger and violence of madmen is always necessary for preventing their hurting themselves or others: but this restraint is also to be considered as a remedy. Angry passions are always rendered more violent by the indulgence of the impetuous motions they produce; and even in madmen the feeling of restraint will sometimes prevent the efforts which their passion would otherwise occasion. Restraint, therefore, is useful, and ought to be complete; but it should be executed in the easiest manner possible for the patient, and the strait waistcoat answers every purpose better than any other that has yet been thought of. The restraining madmen by the force of other men, as occasioning a constant struggle and violent agitation, is often hurtful. Although, on many occasions, it may not be safe to allow maniacs to be upon their legs or to walk about, it is never desirable to confine them to a horizontal situation; and whenever it can be admitted, they should be more or less in an erect posture. Although there may be no symptoms of any preternatural fulness or increased impetus of blood in the vessels of the brain, a horizontal posture always increases the fulness and tension of these vessels, and may thereby increase the excitement of the brain.

1564.] The restraint mentioned requires confinement within doors, and it should be in a place which presents as few objects of sight and hearing as possible; and particularly, it should be removed from the objects that the patient was formerly acquainted with, as these would more readily call up ideas and their various associations. It is for this reason that the confinement of madmen should hardly ever be in their usual habitation; or if they are, that their apartment should be stripped of all its former furniture. It is also for the most part proper, that maniacs should be with-

out the company of any of their former acquaintance ; the appearance of whom commonly excites emotions that increase the disease. Strangers may at first be offensive ; but in a little time they come to be objects either of indifference or of fear, and they should not be frequently changed.

1565.] Fear being a passion that diminishes excitement, may therefore be opposed to the excess of it ; and particularly to the angry and irascible excitement of maniacs. These being more susceptible of fear than might be suspected, it appears to me to have been commonly useful. In most cases it has appeared to be necessary to employ a very constant impression of fear ; and therefore to inspire them with the awe and dread of some particular persons, especially of those who are to be constantly near them. This awe and dread is therefore, by one means or other, to be acquired ; in the first place, by their being the authors of all the restraints that may be occasionally proper ; but sometimes it may be necessary to acquire it even by stripes and blows. The former, although having the appearance of more severity, are much safer than strokes or blows about the head. Neither of them, however, should be employed further than seems very necessary, and should be trusted only to those whose discretion can be depended upon. There is one case in which they are superfluous ; that is, when the maniacal rage is either not susceptible of fear, or incapable of remembering the objects of it ; for in such instances, stripes and blows would be wanton barbarity. In many cases of a moderate disease, it is of advantage that the persons who are the authors of restraint and punishment, should be upon other occasions the bestowers of every indulgence and gratification that is admissible ; never, however, neglecting to employ their awe when their indulgence shall have led to any abuse.

1566.] Although in mania, no particular irritation nor fulness of the system seem to be present, it is plain, that the avoiding all irritation and means of fulness is proper ; and therefore, that a diet neither stimulating nor nourishing is commonly to be employed. As it may even be useful to diminish the fulness of the system, so both a low and a spare diet is likely in most cases to be of service.

1567.] Upon the same principle, although no unusual fulness of the body be present, it may be of advantage to diminish even its ordinary fulness by different evacuations.

Blood-letting, in particular, might be supposed useful ;

and in all recent cases of mania it has been commonly practised, and I think with advantage ; but when the disease has subsisted for some time, I have seldom found blood-letting of service. In those instances in which there is any frequency or fulness of pulse, or any marks of an increased impetus of the blood in the vessels of the head, blood-letting is a proper and even a necessary remedy. Some practitioners, in such cases, have preferred a particular manner of blood-letting, recommending arteriotomy, scarifying the hind-head, or opening the jugular vein ; and where any fulness or inflammatory disposition in the vessels of the brain is to be suspected, the opening of the vessels nearest to them is likely to be of the greatest service. The opening, however, of either the temporal artery or the jugular vein in maniacal persons is very often inconvenient ; and it may generally be sufficient to open a vein in the arm, while the body is kept in somewhat of an erect posture, and such a quantity of blood drawn as nearly brings on a *deliquium animi*, which is always a pretty certain mark of some diminution of the fulness and tension of the vessels of the brain.

1568.] For the same purpose of taking off the fulness and tension of these vessels of the brain, purging may be employed ; and I can in no other view understand the celebrated use of hellebore among the ancients. I cannot, however, suppose any specific power in hellebore ; and can by no means find that, at least the black hellebore, is so efficacious with us as it is said to have been at Anticyra. As costiveness, however, is commonly a very constant and hurtful attendant of mania, purgatives come to be sometimes very necessary ; and I have known some benefit obtained from the frequent use of pretty drastic purgatives. In this, however, I have been frequently disappointed ; and I have found more advantage from the frequent use of cooling purgatives, particularly the soluble tartar, than from more drastic medicines.

1569.] Vomiting has also been frequently employed in mania ; and by determining powerfully to the surface of the body, it may possibly diminish the fulness and tension of the vessels, and thereby the excitement of the brain ; but I have never carried the use of this remedy so far as might enable me to judge properly of its effects. Whether it may do harm by impelling the blood too forcibly into the vessels of the brain, or whether by its general agitation of the whole system it may remove that inequality of excite-

ment which prevails in mania, I have not had experience enough to determine.

1570.] Frequent shaving of the head has been found of service in mania, and by promoting perspiration it probably takes off from the excitement of the internal parts. This, however, it is likely, may be more effectually done by blistering, which more certainly takes off the excitement of subjacent parts. In recent cases it has been found useful by inducing sleep ; and when it has that effect, the repetition of it may be proper : but in maniacal cases that have lasted for some time, blistering has not appeared to me to be of any service ; and in such cases also I have not found perpetual blisters, or any other form of issue, prove useful.

1571.] As heat is the principal means of first exciting the nervous system, and establishing the nervous power and vital principle in animals ; so, in cases of preternatural excitement, the application of cold might be supposed a proper remedy : but there are many instances of maniacs who have been exposed for a great length of time to a considerable degree of cold without having their symptoms anywise relieved. This may render in general the application of cold a doubtful remedy ; but it is at the same time certain, that maniacs have often been relieved, and sometimes entirely cured, by the use of cold bathing, especially when administered in a certain manner. This seems to consist, in throwing the madman in the cold water by surprise ; by detaining him in it for some length of time ; and pouring water frequently upon the head, while the whole of the body except the head is immersed in the water ; and thus managing the whole process, so as that, with the assistance of some fear, a refrigerant effect may be produced. This, I can affirm, has been often useful ; and that the external application of cold may be of service, we know further from the benefit which has been received in some maniacal cases from the application of ice and snow to the naked head, and from the application of the noted Clay Clap.

Warm bathing also has been recommended by some practical writers ; and in some rigid melancholic habits it may possibly be useful, or as employed in the manner prescribed by some, of immersing the lower parts of the body in warm water, while cold water is poured upon the head and upper parts. Of this practice, however, I have had no

experience, and in the common manner of employing warm bathing I have found it rather hurtful to maniacs.

1572.] According to my supposition that the disease depends upon an increased excitement of the brain, especially with respect to the animal functions, opium, so commonly powerful in inducing sleep, or a considerable collapse as to these functions, should be a powerful remedy of mania. That it has truly proved such, I believe from the testimony of Bernard Huet, whose practice is narrated at the end of Wepferi *Historia Apoplecticorum*. I leave to my readers to study this in the work I have referred to, where every part of the practice is fully, and it appears to me, very judiciously delivered. I have never indeed carried the trial so far as seems to be requisite to an entire cure: but I have frequently employed in some maniacal cases large doses of opium; and when they had the effect of inducing sleep, it was manifestly with advantage. At the same time, in some cases, from doubts, whether the disease might not depend upon some organic lesions of the brain, when the opium would be superfluous; and in other cases, from doubts, whether there might not be some inflammatory affection joined with the mania, when the opium would be hurtful, I have never pushed this remedy to the extent that might be necessary to make an entire cure.

1573.] Camphire has been recommended as a remedy of mania, and there are instances alledged of its having performed an entire cure. As it appears from the experiments of Beccaria that this substance is possessed of a sedative and narcotic virtue, these cures are not altogether improbable: but in several trials, and even in large doses, I have found no benefit from it; and excepting those in the *Philosophical Transactions*, No. 400. I have hardly met with any other testimonies in its favor.

1574.] I have been informed that some maniacs have been cured by being compelled to constant and even hard labor; and as a forced attention to the conduct of any bodily exercise is a very certain means of diverting the mind from pursuing any train of thought, it is highly probable that such exercise may be useful in many cases of mania.

I must conclude this subject with observing, that even in several cases of complete mania, I have known a cure take place in the course of a journey carried on for some length of time.

1575]. These are the remedies which have been chiefly

employed in the mania that has been above described, and I believe they have been employed promiscuously without supposing that the mania was to be distinguished into different species. Indeed I am not ready to say how far it is to be so distinguished, but I shall offer one observation which may possibly merit attention.

It appears to me that there are two different cases of mania that are especially different according to the original temperament of the persons whom the disease affects. It perhaps occurs most frequently in persons of a melancholic or atrabilarian temperament; but it certainly does also often occur in persons of that very opposite temperament which physicians have named the Sanguine. According as the disease happens to occur in persons of the one or other of these temperaments, I apprehend it may be considered as of a different nature; and I believe, that accurate observation, employed upon a sufficient number of cases, would discern some pretty constant difference, either of the symptoms, or at least of the state of the symptoms, in the two cases. I imagine that false imaginations, particular aversions and resentments, are more fixed and steady in the melancholic than in the sanguine; and that somewhat inflammatory is more commonly joined with mania in the sanguine than in the melancholic. If such difference, however, does truly take place, it will be obvious, that it may be proper to make some difference also in the practice. I am of opinion, that in the mania of sanguine persons, blood-letting and other antiphlogistic measures are more proper, and have been more useful, than in the melancholic. I likewise apprehend that cold bathing is more useful in the sanguine than in the melancholic: but I have not had experience enough to ascertain these points with sufficient confidence.

I have only to add to this other observation, that maniacs of the sanguine temperament recover more frequently and more entirely than those of the melancholic.

CHAPTER III.

OF MELANCHOLY AND OTHER FORMS OF INSANITY.

1576.] **M**ELANCHOLY has been commonly considered as partial insanity; and as such it is

defined in my Nosology : but I now entertain doubts if this be altogether proper. By a partial insanity, I understand a false and mistaken judgment upon one particular subject, and what relates to it ; whilst, on every other subject, the person affected judges as the generality of other men do. Such cases have certainly occurred ; but, I believe, few in which the partial insanity is strictly limited. In many cases of general insanity, there is one subject of anger or fear, upon which the false judgment more particularly turns, or which is at least more frequently than any other the prevailing object of delirium : and though, from the inconsistency which this principal object of delirium must produce, there is therefore also a great deal of insanity with regard to most other objects ; yet this last is in very different degrees, both in different persons, and in the same person at different times. Thus persons considered as generally insane, will, however, at times, and in some cases, pretty constantly judge properly enough of present circumstances and incidental occurrences ; though, when these objects engaging attention are not presented, the operations of imagination may readily bring back a general confusion, or recal the particular object of the delirium. From these considerations, I am inclined to conclude, that the limits between general and partial insanity cannot always be so exactly assigned, as to determine when the partial affection is to be considered as giving a peculiar species of disease, different from a more general insanity.

1577.] When insanity, neither strictly partial nor entirely nor constantly general, occurs in persons of a sanguine temperament, and is attended with agreeable, rather than with angry or gloomy emotions, I think such a disease must be considered as different from the Mania described above ; and also, though partial, must be held as different from the proper Melancholia to be mentioned hereafter.

1578.] Such a disease, as different from those described (1555.) requires, in my opinion, a different administration of remedies ; and it will be proper for me to take particular notice of this here.

Although it may be necessary to restrain such insane persons as we have mentioned (1577.) from pursuing the objects of their false imagination or judgment, it will hardly be requisite to employ the same force of restraint that is necessary in the impetuous and angry mania. It will be generally sufficient to acquire some awe over them, that may

be employed, and sometimes even be necessary, to check the rambling of their imagination, and incoherency of judgment.

1579.] The restraint just now mentioned as necessary will generally require the patient's being confined to one place, for the sake of excluding the objects, and more particularly the persons, that might excite ideas connected with the chief objects of their delirium. At the same time, however, if it can be perceived there are objects or persons that can call off their attention from the pursuit of their own disordered imagination, and fix it a little upon some others, these last may be frequently presented to them: and for this reason, a journey, both by its having the effect of interrupting all train of thought, and by presenting objects engaging attention, may often be useful. In such cases also, when the insanity, though more especially fixed upon one mistaken subject, is not confined to this alone, but is further apt to ramble over other subjects with incoherent ideas, I apprehend the confining or forcing such persons to some constant uniform labor, may prove an useful remedy.

1580.] When such cases as in 1577, occur in sanguine temperaments, and may therefore approach more nearly to Phrenetic Delirium; so, in proportion as the symptoms of this tendency are more evident and considerable, blood-letting and purging will be the more proper and necessary.

1581.] To this species of insanity, when occurring in sanguine temperaments, whether it be more or less partial, I apprehend that cold bathing is particularly adapted; while in the partial insanity of melancholic persons, as I shall show hereafter, it is hardly admissible.

1582.] Having thus treated of a species of insanity, different, in my apprehension, from both the Mania and Melancholia, I proceed to consider what seems more properly to belong to this last.

1583.] The disease which I name Melancholia is very often a partial insanity only. But as in many instances, though the false imagination or judgment seems to be with respect to one subject only; yet it seldom happens that this does not produce much inconsistency in the other intellectual operations: and as, between a very general and a very partial insanity, there are all the possible intermediate degrees; so it will be often difficult, or perhaps improper, to distinguish melancholia by the character of Par-

tial Insanity alone. If I mistake not, it must be chiefly distinguished by its occurring in persons of a melancholic temperament, and by its being always attended with some seemingly groundless, but very anxious fear.

1584.] To explain the cause of this, I must observe, that persons of a melancholic temperament are for the most part of a serious, thoughtful disposition, and disposed to fear and caution, rather than to hope and temerity. Persons of this cast are less movcable than others by any impressions : and are therefore capable of a closer or more continued attention to one particular object, or train of thinking. They are even ready to be engaged in a constant application to one subject ; and are remarkably tenacious of whatever emotions they happen to be affected with.

1585.] These circumstances of the melancholic character, seem clearly to shew, that persons strongly affected with it may be readily seized with an anxious fear ; and that this, when much indulged, as is natural to such persons, may easily grow into a partial insanity.

1586.] Fear and dejection of mind, or a timid and desponding disposition, may arise in certain states, or upon certain occasions of mere debility : and it is upon this footing, that I suppose it sometimes to attend dyspepsia. But in these cases, I believe the despondent disposition hardly ever arises to a considerable degree, or proves so obstinately fixed as when it occurs in persons of a melancholic temperament. In these last, although the fear proceeds from the same dyspeptic feelings as in the other case, yet it will be obvious, that the emotion may rise to a more considerable degree ; that it may be more anxious, more fixed, and more attentive ; and therefore may exhibit all the various circumstances which I have mentioned in 1222, to take place in the disease named HYPOCHONDRIASIS.

1587.] In considering this subject formerly in distinguishing Dyspepsia from Hypochondriasis, although the symptoms affecting the body be very much the same in both, and even those affecting the mind be somewhat similar, I found no difficulty in distinguishing the latter disease, merely from its occurring in persons of a melancholic temperament. But I must now acknowledge, that I am at a loss to determine how in all cases hypochondriasis and melancholia may be distinguished from one another, whilst the same temperament is common to both.

1588.] I apprehend, however, that the distinction may be generally ascertained in the following manner.

The hypochondriasis I would consider as being always attended with dyspeptic symptoms : and though there may be, at the same time, an anxious melancholic fear arising from the feeling of these symptoms ; yet while this fear is only a mistaken judgment with respect to the state of the person's own health, and to the danger to be from thence apprehended, I would still consider the disease as a hypochondriasis, and as distinct from the proper melancholia. But when an anxious fear and despondency arises from a mistaken judgment with respect to other circumstances than those of health, and more especially when the person is at the same time without any dyspeptic symptoms, every one will readily allow this to be a disease widely different from both dyspepsia and hypochondriasis ; and it is, what I would strictly name Melancholia.

1589.] In this there seems little difficulty ; but as an exquisitely melancholic temperament may induce a torpor and slowness in the action of the stomach, so it generally produces some dyspeptic symptoms : and from thence there may be some difficulty in distinguishing such a case from hypochondriasis. But I would maintain, however, that when the characters of the temperament are strongly marked ; and more particularly when the false imagination turns upon other subjects than that of health, or when, though relative to the person's own body, it is of a groundless and absurd kind ; then, notwithstanding the appearance of some dyspeptic symptoms, the case is still to be considered as that of a melancholia, rather than a hypochondriasis.

1590.] The disease of melancholia, therefore manifestly depends upon the general temperament of the body : and although, in many persons, this temperament is not attended with any morbid affection either of mind or body ; yet when it becomes exquisitely formed, and is in a high degree, it may become a disease affecting both, and particularly the mind. It will therefore be proper to consider in what this melancholic temperament especially consists ; and to this purpose, it may be observed, that in it there is a degree of torpor in the motion of the nervous power, both with respect to sensation and volition ; that there is a general rigidity of the simple solids ; and that the balance of the sanguiferous system, is upon the side of the veins. But all these circumstances are the directly opposite of those of

the sanguine temperament ; and must therefore also produce an opposite state of the mind.

1591.] It is this state of the mind, and the state of the brain corresponding to it, that is the chief object of our present consideration. But what that state of the brain is, will be supposed to be difficult to explain ; and it may perhaps seem rash in me to attempt it.

I will, however, venture to say, that it is probable the melancholic temperament of mind depends upon a drier and firmer texture in the medullary substance of the brain ; and that this perhaps proceeds from a certain want of fluid in that substance, which appears from its being of a lesser specific gravity than usual. That this state of the brain in melancholia does actually exist, I conclude, *first*, from the general rigidity of the whole habit ; and, *secondly*, from dissections, showing such a state of the brain to have taken place in mania, which is often no other than a higher degree of melancholia. It does not appear to me any wise difficult to suppose, that the same state of the brain may in a moderate degree give melancholia ; and in a higher, that mania which melancholia so often passes into ; especially if I shall be allowed further to suppose, that either a greater degree of firmness in the substance of the brain may render it susceptible of a higher degree of excitement, or that one portion of the brain may be liable to acquire a greater firmness than others, and consequently give occasion to that inequality of excitement upon which mania so much depends.

1592.] I have thus endeavored to deliver what appears to me most probable with respect to the proximate cause of melancholia ; and although the matter should in some respects remain doubtful, I am well persuaded that these observations may be often employed to direct our practice in this disease, as I shall now endeavor to show.

1593.] In most of the instances of melancholia, the mind is to be managed very much in the same manner as I have advised above with regard to hypochondriasis ; but as in the case of proper melancholia, there is commonly a false imagination or judgment appearing as a partial insanity, it may be further necessary in such cases to employ some artifices for correcting such imagination or judgment.

1594.] The various remedies for relieving the dyspeptic symptoms which always attend hypochondriasis, will seldom be either requisite or proper in melancholia.

There is only one of the dyspeptic symptoms, which,

though there should be no other, is very constantly present in melancholia, and that is costiveness. This it is always proper and even necessary to remove ; and I believe it is upon this account that the use of purgatives has been found so often useful in melancholia. Whether there be any purgatives peculiarly proper in this case, I dare not positively determine ; but with respect to the choice of purgatives in melancholia, I am of the same opinion that I delivered above on this same subject with respect to mania.

1595.] With respect to other remedies, I judge that blood-letting will more seldom be proper in melancholia than in mania ; but how far it may be in any case proper, must be determined by the same considerations as in the case of mania.

1596.] The cold bathing that I judged to be so very useful in several cases of insanity, is, I believe, in melancholia, hardly ever fit to be admitted ; at least while this is purely a partial affection, and without any marks of violent excitement. On the contrary, upon account of the general rigidity prevailing in melancholia, it is probable that warm bathing may be often useful.

1597.] With respect to opiates which I have supposed might often be useful in cases of mania, I believe they can seldom be properly employed in the partial insanities of the melancholic, except in certain instances of violent excitement, when the melancholia approaches nearly to the state of mania.

1598.] In such cases of melancholia approaching to a state of mania, a low diet may sometimes be necessary ; but as the employing a low diet almost unavoidably leads to the use of vegetable food, and as this in every torpid state of the stomach is ready to produce some dyspeptic symptoms, such vegetable food ought, in moderate cases of melancholia, to be used with some caution.

Though exercise, as a tonic power, is not proper either in hypochondriasis or melancholia ; yet, with respect to its effects upon the mind, it may be extremely useful in both, and in melancholia is to be employed in the same manner that I have advised above in the case of hypochondriasis.

1599.] Having now delivered my doctrine with respect to the forms of insanity, I should in the next place proceed to consider the other genera of Amentia and Oneirodynia, which in the Nosology I have arranged under the order of Vesaniæ ; but as I cannot pretend to throw much light upon these subjects, and as they are seldom the objects of

practice, I think it allowable for me to pass them over at present ; and the particular circumstances of this work in some measure require that I should do so.

P A R T I I I .

O F C A C H E X I E S .

1600.] **U**NDER this title I propose to establish a class of diseases, which consist in a depraved state of the whole, or of a considerable part, of the habit of the body, without any primary pyrexia or neurosis combined with that state.

1601.] The term *Cachexy* has been employed by Linnæus and Vogel, as it had been formerly by other authors; for the name of a particular disease; but the disease to which these authors have affixed it, comes more properly under another appellation; and the term of *Cachexy* is more properly employed by Sauvages and Sagar for the name of a class. In this I have followed the last mentioned nosologists, though I find it difficult to give such a character of the class as will clearly apply to all the species I have comprehended under it. This difficulty would be still greater, if, in the class I have established under the title of *Cachexies*, I were to comprehend all the diseases that those other nosologists have done; but I am willing to be thought deficient rather than very incorrect. Those difficulties, however, which still remain in methodical nosology, must not affect us much in a treatise of practice. If I can here properly distinguish and describe the several species that truly and most commonly exist, I shall be the less concerned about the accuracy of my general classification; though at the same time this, I think, is always to be attempted; and I shall pursue it as well as I can.

B O O K I .

O F E M A C I A T I O N S .

1602.] **E**MACIATION, or a considerable diminution of the bulk or plumpness of the whole body,

is for the most part only a symptom of disease, and very seldom to be considered as a primary and idiopathic affection. Upon this account, according to my general plan, such a symptom might perhaps have been omitted in the Methodical Nosology : but both the uncertainty of concluding it to be always symptomatic, and the consistency of system, made me introduce into the Nosology, as others had done, an order under the title of *Marcores* ; and this renders it requisite now to take some notice of such diseases.

1603.] Upon this occasion, therefore, I hope it may be useful to investigate the several causes of emaciation in all the different cases of disease in which it appears. And this I attempt, as the surest means of determining how far it is a primary, or a symptomatic affection only ; and even in the latter view, the investigation may be attended with some advantage.

1604.] The causes of emaciation may, I apprehend, be referred to two general heads ; that is, either to a general deficiency of fluid in the vessels of the body, or to the particular deficiency of the oil in the cellular texture of it.* These causes are frequently combined together ; but it will be proper, in the first place, to consider them separately.

1605.] As a great part of the body of animals is made up of vessels filled with fluids, the bulk of the whole must depend very much on the size of these vessels, and the quantity of fluids present in them : and it will therefore be sufficiently obvious, that a deficiency of the fluids in these vessels must, according to its degree, occasion a proportionate diminution of the bulk of the whole body. This, however, will appear still more clearly, from considering that in the living and sound body the vessels every where seem to be preternaturally distended by the quantity of fluids present in them ; but being at the same time elastic, and constantly endeavoring to contract themselves, they must on the withdrawing of the distending force, or in other words, upon a diminution of the quantity of fluids, be in proportion contracted and diminished in their size. And it may be further observed, that as each part of the vascular system communicates with every other part of it ; so every degree of diminution of the quantity of fluid, in any one part, must in proportion diminish the bulk of the vascular system, and consequently of the whole body.†

* Might not a third cause be added, viz. a deficiency of the solid parts?

† There may, however, be a partial without a general emaciation, as is the case in a palsied limb : but this partial diminution of bulk in the diseased limb is not owing to a lessened quan-

1606.] The diminution and deficiency of the fluids may be occasioned by different causes : such as, first, by a due quantity of aliments not being taken in ; or by the aliment taken in not being of a sufficiently nutritious quality. Of the want of a due quantity of aliment not being taken into the body, there is an instance in the *atrophia lactantium Sauvagesii*, species 3. and many other examples have occurred of emaciation from want of food, occasioned by poverty, and other accidental causes.

With respect to the quality of food, I apprehend it arises from the want of nutritious matter in the food employed, that persons living entirely on vegetables are seldom of a plump and succulent habit.*

1607.] A second cause of the deficiency of fluids may be, the aliments taken in not being conveyed to the blood-vessels. This may occur from a person's being affected with a frequent vomiting ; which, rejecting the food soon after it had been taken in, must prevent the necessary supply of fluids to the blood-vessels.† Another cause, frequently interrupting the conveyance of the alimentary matter into the blood-vessels, is an obstruction of the conglobate or lymphatic glands of the mesentery, through which the chyle must necessarily pass to the thoracic duct. Many instances of emaciation, seemingly depending upon this cause, have been observed by physicians, in persons of all ages, but especially in the young. It has also been remarked, that such cases have most frequently occurred in scrophulous persons, in whom the mesenteric glands are commonly affected with tumor or obstruction, and in whom, generally at the same time, scrophula appears externally. Hence the *Tabes scrophulosa Synop. Nosolog.* vol. ii. p. 266. And under these I have put as synonymes *Tabes glandularis*, sp. 10. *Tabes mesenterica*, sp. 9. *Scrophula mesenterica*, sp. 4. *Atrophia infantilis*, sp. 13. *Atrophia rachitica*, sp. 8. *Tabes rachialgica*, sp. 16. At the same time, I have frequently found the case occurring in persons who did not show any external appearance of scrophula, but in whom

tity of the general mass of the circulating fluids, but to the languid circulation in that part, the arteries not propelling the blood through it with sufficient vigor.

* As the author says at the conclusion of this chapter, "After having considered the various causes of emaciations, I should perhaps treat of their cure: but it will readily appear, that the greater part of the cases above mentioned are purely symptomatic, and consequently that the cure of them must be that of the primary diseases upon which they depend. Of those cases that can anywise be considered as idiopathic, it will appear that they are to be cured entirely by removing the remote causes;" it may not be improper to treat of the cure as we proceed.

This species of emaciation may be obviously cured by a rich and nutritious diet.

† This species may be cured by preventing the vomiting by antispasmodics, especially opium, and by the use of gentle laxatives occasionally. A nutritious diet will also be necessary in these cases.

the mesenteric obstruction was afterwards discovered by dissection. Such also I suppose to have been the case in the disease frequently mentioned by authors under the title of the *Atrophia infantum*. This has received its name from the time of life at which it generally appears; but I have met with instances of it at fourteen years of age ascertained by dissection. In several such cases which I have seen, the patients were without any scrophulous appearances at the time, or at any period of their lives before.*

In the case of phthisical persons, I shall hereafter mention another cause of their emaciation; but it is probable that an obstruction of the mesenteric glands, which so frequently happens in such persons, concurs very powerfully in producing the emaciation that takes place.

Although a scrophulous taint may be the most frequent cause of mesenteric obstructions, it is sufficiently probable that other kinds of acrimony may produce the same, and the emaciation that follows.

It may perhaps be supposed, that the interruption of the chyle's passing into the blood-vessels may be sometimes owing to a fault of the absorbents on the internal surface of the intestines. This, however, cannot be readily ascertained: but the interruption of the chyle's passing into the blood-vessels may certainly be owing to a rupture of the thoracic duct; which, when it does not prove soon fatal, by occasioning a hydrothorax must in a short time produce a general emaciation.†

1608.] A third cause of the deficiency of the fluids may be a fault in the organs of digestion, as not duly converting the aliment into a chyle fit to form in the blood-vessels a proper nutritious matter. It is not, however, easy to ascertain the cases of emaciation which are to be attributed to this cause; but I apprehend that the emaciation which attends long subsisting cases of dyspepsia, or of hypochondriasis, is to be explained chiefly in this way. It is this which I have placed in the Nosology under the title of the *Atrophia debiliū*; and of which the *Atrophia Nervosa*, Sauv. sp. 1. is a proper instance, and therefore put there as a synonyme. But the other titles of *Atrophia Lateralis*, Sauv. sp. 15. and *Atrophia senilis*, Sauv. sp. 11. are not so

* These cases are generally incurable; if, however, there be no suspicion of scrophula, we may attempt a cure by endeavoring to remove the obstruction either by invigorating the habit, or by active aperients. Open and pure air, with exercise suited to the strength of the patient, the use of chalybeate waters, have admirable effects in these cases. Peruvian bark so often used as a tonic, is improper in all cases of obstructed glands, as are also astringents and styptics.

† This is an absolutely incurable case.

properly put there, as they must be explained in a different manner.*

1609.] A fourth cause of a deficiency of the fluids in the body, may be excessive evacuations made from it by different outlets ; and Sauvages has properly enumerated the following species, which we have put as synonymes under the title of *Atrophia inanitorum* ; as, *Tabes nutricum*, sp. 4 ; *Atrophia nutricum*, sp. 5 ; *Atrophia à leucorrhœa*, sp. 4 ; *Atrophia ab alvi fluxu*, sp. 6 ; *Atrophia à pyalismò*, sp. 7 ; and lastly, the *Tabes à sanguifluxu* ; which, it is to be observed, may arise not only from spontaneous hemorrhagies or accidental wounds, but also from blood-letting in too large a quantity, and too frequently repeated.

Upon this subject it seems proper to observe, that a meagre habit of body frequently depends upon a full perspiration being constantly kept up, though at the same time a large quantity of nutritious aliment is regularly taken in.†

1610.] Besides this deficiency of fluids from evacuations by which they are carried entirely out of the body, there may be a deficiency of fluid and emaciation in a considerable part of the body, by the fluids being drawn into one part, or collected into one cavity ; and of this we have an instance in the *Tabes à hydrope*, Sauv. sp. 5.‡

1611.] In the Methodical Nosology, among the other synonymes of the *Atrophia inanitorum* I have set down the *Tabes dorsalis* ; but whether properly or not, I at present very much doubt. In the evacuation considered as the cause of this tabes, as the quantity evacuated is never so great as to account for a general deficiency of fluids in the body, we must seek for another explanation of it. And whether the effects of the evacuation may be accounted for, either from the quality of the fluid evacuated, or from the singularly enervating pleasure attending the evacuation, or from the evacuation's taking off the tension of parts, the tension of which has a singular power in supporting the tension and vigor of the whole body, I cannot positively determine ; but I apprehend that upon one or other of these suppositions the emaciation attending the *tabes dorsalis* must be accounted for ; and therefore, that it is to be con-

* This species of emaciation may be successfully cured by the means of those remedies mentioned in the notes on the articles 1204, 1206, 1210, 1212, 1213, 1215, 1216, 1221.

† In these cases astringents are the principal remedies on which we must depend ; and those astringents must be chosen which are adapted to suppress the peculiar evacuation that occasions the disease.

‡ The emaciation from this cause is merely symptomatic, and can only be cured by curing the primary disease.

sidered as an instance of the *Atrophia debiliūm*, rather than of the *Atrophia inanitorum*.*

1612.] A fifth cause of a deficiency of fluids and of emaciations in the whole or in a particular part of the body, may be the concretion of the small vessels, either not admitting of fluids, or of the same proportion as before; and this seems to me to be the case in the *Atrophia senilis*, Sauv. sp. 2. Or it may be a palsy of the larger trunks of the arteries rendering them unfit to propel the blood into the smaller vessels; as is frequently the case of paralytic limbs, in which the arteries are affected as well as the muscles. The *Atrophia lateralis*, Sauv. sp. 15, seems to be of this nature.†

1613.] A second general head of the causes of emaciation I have mentioned in 1603, to be a deficiency of oil. The extent and quantity of the cellular texture in every part of the body, and therefore how considerable a part it makes in the bulk of the whole is now well known. But this substance, in different circumstances, is more or less filled with an oily matter; and therefore the bulk of it, and in a great measure that of the whole body, must be greater or less according as this substance is more or less filled in that manner. The deficiency of fluids, for a reason to be immediately explained, is generally accompanied with a deficiency of oil: but physicians have commonly attended more to the latter cause of emaciation than to the other, that being usually the most evident; and I shall now endeavor to assign the several causes of the deficiency of oil as it occurs upon different occasions.

1614.] The business of secretion in the human body is in general little understood, and in no instance less so than in that of the secretion of oil from blood which does not appear previously to have contained it. It is possible, therefore, that our theory of the deficiency of oil may be in several respects imperfect; but there are certain facts that may in the mean time apply to the present purpose.

1615.] First, it is probable, that a deficiency of oil may be owing to a state of the blood in animal bodies less fitted to afford a secretion of oil, and consequently to supply the waste of it that is constantly made. This state of the blood must especially depend upon the state of the aliments taken

* If a particular abominable practice be the cause, it must be abandoned before a cure can be attempted.

† This is one of the incurable species of emaciation, and it can only be relieved by a very nutritious and invigorating diet.

in, as containing less of oil or oily matter. From many observations made, both with respect to the human body and to that of other animals, it appears pretty clearly, that the aliments taken in by men and domestic animals, according as they contain more of oil, are in general more nutritious, and in particular are better fitted to fill the cellular texture of their bodies with oil. I might illustrate this, by a minute and particular consideration of the difference of alimentary matters employed; but it will be enough to give two instances. The one is, that the herbaceous part of vegetables does not fatten animals, so much as the seeds of vegetables, which manifestly contain in any given weight a greater proportion of oil: and a second instance is, that in general vegetable aliments do not fatten men so much as animal food, which generally contains a larger portion of oil.

It will be obvious, that upon the same principles a want of food, or a less nutritious food, may not only occasion a general deficiency of fluids (1605.) but must also afford less oil, to be poured into the cellular texture. In such cases, therefore, the emaciation produced, is to be attributed to both these general causes.*

1616.] A second case of the deficiency of oil may be explained in this manner. It is pretty manifest, that the oil of the blood is secreted and deposited in the cellular texture in greater or lesser quantity, according as the circulation of the blood is faster or slower; and therefore that exercise, which hastens the circulation of the blood, is a frequent cause of emaciation. Exercise produces this effect in two ways. 1st. By increasing the perspiration, and thereby carrying off a greater quantity of the nutritious matter, it leaves less of it to be deposited in the cellular texture; thereby not only preventing an accumulation of fluids, but, as I have said above, causing a general deficiency of these, which must also cause a deficiency of oil in the cellular texture. 2dly, It is well known, that the oil deposited in the cellular texture is upon many occasions, and for various purposes of the economy, again absorbed, and mixed or diffused in the mass of blood, to be from thence perhaps carried entirely out of the body by the several excretions. Now, among other purposes of the accumulation and reabsorption of oil, this seems to be one, that the oil is requisite to the proper action of the moving fibres in every part of the body; and therefore that nature

* The cure of this species of emaciation will be best effected by a rich diet of animal food.

has provided for an absorption of oil to be made according as the action of the moving fibres may demand it. It will thus be obvious, that the exercise of the muscular and moving fibres every where, must occasion an absorption of oil; and consequently that such exercise not only prevents the secretion of oil, as has been already said, but may also cause a deficiency of it, by occasioning an absorption of what had been deposited; and in this way perhaps especially, does it produce emaciation.*

1617.] A third case of the deficiency of oil may occur from the following cause. It is probable, that one purpose of the accumulation of oil in the cellular texture of animals is, that it may, upon occasion, be again absorbed from thence, and carried into the mass of blood, for the purpose of enveloping and correcting any unusual acrimony arising and existing in the state of the fluids. Thus, in most instances in which we can discern an acrid state of the fluids, as in scurvy, cancer, syphilis, poisons, and several other diseases, we find at the same time a deficiency of oil and an emaciation take place; which, in my apprehension, must be attributed to the absorption of oil, which the presence of acrimony in the body excites.

It is not unlikely that certain poisons introduced into the body, may subsist there; and, giving occasion to an absorption of oil, may lay a foundation for the *Tabes à veneno*, Sauv. sp. 17.†

1618.] A fourth cause of emaciation, and which I would attribute to a sudden and considerable absorption of oil from the cellular texture, is that of fever, which so generally produces emaciation. This may perhaps be in part attributed to the increased perspiration, and therefore to the general deficiency of fluids that may be supposed to take place: but whatever share that may have in producing the effect, we can, from the evident shrinking and diminution of the cellular substance, wherever it falls under our observation, certainly conclude, that there has been a very considerable absorption of the oil which had been before deposited in that substance. This explanation is rendered the more probable from this, that I suppose the absorption

* Abstinence from too severe exercise is the only cure for this species of the disease.

† As this kind of emaciation proceeds from various causes, the practitioner must, after having ascertained the true cause, endeavor to remove it: and this must be left entirely to his own sagacity. It may however be proper to observe, that several of these emaciations proceed from incurable diseases; as from Cancer, Scrophula, &c. and consequently admit of no cure: and those emaciation, which proceed from scurvy, syphilis, or those diseases which we can cure, are only to be cured by curing the primary disease.

mentioned is necessarily made for the purpose of enveloping or correcting an acrimony, which manifestly does in many, and may be suspected to arise in all, cases of fever. The most remarkable instance of emaciation occurring in fevers, is that which appears in the case of hectic fevers. Here the emaciation may be attributed to the profuse sweatings that commonly attend the disease : but there is much reason to believe, that an acrimony also is present in the blood ; which, even in the beginning of the disease, prevents the secretion and accumulation of oil ; and in the more advanced states of it, must occasion a more considerable absorption of it ; which, from the shrinking of the cellular substance, seems to go farther than in almost any other instance.*

Upon the subject of emaciations from a deficiency of fluids, it may be observed, that every increased evacuation excites an absorption from other parts, and particularly from the cellular texture ; and it is therefore probable, that a deficiency of fluids, from increased evacuations, produces an emaciation, not only by the waste of the fluids in the vascular system, but also by occasioning a considerable absorption from the cellular texture.

1619.] I have thus endeavored to explain the several cases and causes of emaciation ; but I could not prosecute the consideration of these here in the order they are set down in the Methodical Nosology. In that work I was engaged chiefly in arranging the Species of Sauvages : but it is my opinion now, that the arrangement there given is erroneous, in both combining and separating species improperly : and it seems to me more proper here to take notice of diseases, and put them together, according to the affinity of their nature, rather than by that of their external appearances. I doubt, if even the distinction of the *Tubes* and *Atrophia*, attempted in the Nosology, will properly apply ; as I think there are certain diseases of the same nature, which sometimes appear with, and sometimes without, fever.

1620.] After having considered the various cases of emaciations, I should perhaps treat of their cure : but it will readily appear, that the greater part of the cases above mentioned are purely symptomatic, and consequently that the cure of them must be that of the primary diseases upon

* This emaciation is purely symptomatic, and consequently cannot be cured but by removing the primary disease, and a subsequent very nutritious diet, consisting chiefly of animal food.

which they depend. Of those cases that can anywise be considered as idiopathic, it will appear that they are to be cured entirely by removing the remote causes; the means of accomplishing which must be sufficiently obvious.

B O O K II.

OF INTUMESCENTIÆ, OR GENERAL SWELLINGS.

1621.] **T**HE swellings to be treated of in this place, are those which extend over the whole or a great part of the body; or such at least, as, though of small extent, are however of the same nature with those that are more generally extended.

The swellings comprehended under this artificial order, are hardly to be distinguished from one another otherwise than by the matter they contain or consist of. And in this view I have divided the order into four sections, as the swelling happens to contain, *1st*, Oil; *2d*, Air; *3d*, A watery fluid; or, *4th*, As the increased bulk depends upon the enlargement of the whole substance of certain parts, and particularly of one or more of the abdominal viscera.

CHAPTER I.

OF ADIPOSE SWELLINGS.

1622.] **T**HE only disease to be mentioned in this chapter, I have, with other Nosologists, named *Polysarcia*; and in English it may be named Corpulency, or, more strictly, Obesity; as it is placed here upon the common supposition of its depending chiefly upon the increase of oil in the cellular texture of the body. This corpulency, or obesity, is in very different degrees in different persons, and is often considerable without being considered as a disease. There is, however, a certain degree of it, which will be generally allowed to be a disease; as, for example, when it renders persons, from a difficult respiration, uneasy in themselves, and, from the inability of exercise, unfit for discharging the duties of life to others: and

for that reason I have given such a disease a place here. Many physicians have considered it as an object of practice, and as giving, even in a very high degree, a disposition to many diseases ; I am of opinion that it should be an object of practice more frequently than it has been, and therefore that it merits our consideration here.

1623.] It may perhaps be alledged, that I have not been sufficiently correct, in putting the disease of corpulency as an *intumescencia pinguedinosa*, and therefore implying its being an increase of the bulk of the body from an accumulation of oil in the cellular texture only. I am aware of this objection: and as I have already said, that emaciation (1604.) depends either upon a general deficiency of fluids in the vascular system, or upon a deficiency of oil in the cellular texture ; so I should perhaps have observed farther, that the corpulency, or general fulness of the body, may depend upon the fulness of the vascular system as well as upon that of the cellular texture. This is true; and for the same reasons I ought, perhaps, after Linnæus and Sagar, to have set down *plethora* as a particular disease, and as an instance of morbid intumescence. I have, however, avoided this, as Sauvages and Vogel have done ; because I apprehended that *plethora* is to be considered as a state of temperament only, which may indeed dispose to disease ; but not as a disease in itself, unless, in the language of the Stahlians, it be a *plethora commota*, when it produces a disease accompanied with particular symptoms, which give occasion to its being distinguished by a different appellation. Further, it appears to me, that the symptoms which Linnæus, and more particularly those which Sagar employs in the character of *plethora*, never do occur but when the *intumescencia pinguedinosa* has a great share in producing them. It is, however, very necessary to observe here, that *plethora* and obesity are generally combined together ; and that in some cases of corpulency it may be difficult to determine which of the causes has the greatest share in producing it. It is indeed very possible that a *plethora* may occur without great obesity ; but I apprehend that obesity never happens to a considerable degree without producing a *plethora ad spatium* in a great part of the system of the aorta, and therefore a *plethora ad molem* in the lungs, and in the vessels of the brain.

1624.] In attempting the cure of polysarcia, I am of opinion that the conjunction of *plethora* and obesity, in the

manner just now mentioned, should be constantly attended to ; and when the morbid effects of the plethoric habit are threatened, either in the head or lungs, that blood letting is to be practised : but at the same time it is to be observed, that persons of much obesity do not bear blood-letting well ; and when the circumstances I have mentioned do not immediately require it, the practice upon account of obesity alone is hardly ever to be employed. The same remark is to be made with respect to any other evacuations that may be proposed for the cure of corpulency : for without the other means I am to mention, they can give but a very imperfect relief ; and, in so far as they can either empty or weaken the system, they may favor the return of plethora, and the increase of obesity.

1625.] Polysarcia, or corpulency, whether it depend upon plethora or obesity, whenever it either can be considered as a disease or threatens to induce one, is to be cured, or the effects of it are to be obviated, by diet and exercise. The diet must be sparing ; or rather, what is more admissible, it must be such as affords little nutritious matter. It must therefore be chiefly, or almost only, of vegetable matter, and at the very utmost of milk. Such a diet should be employed, and generally ought to precede exercise : for obesity does not easily admit of bodily exercise ; which is, however, the only mode that can be very effectual. Such, indeed, in many cases, may seem difficult to be admitted ; but I am of opinion, that even the most corpulent may be brought to bear it, by at first attempting it very moderately, and increasing it by degrees very slowly, but at the same time persisting in such attempts with great constancy.*

1626.] As these, though the only effectual measures, are often difficult to be admitted or carried into execution, some other means have been thought of and employed for reducing corpulency. These, if I mistake not, have all been certain methods of inducing a saline state in the mass of blood ; for such I suppose to be the effects of vinegar and of soap, which have been proposed. The latter, I believe, hardly passes into the blood-vessels, without being resolved and formed into a neutral salt, with the acid which it meets with in the stomach. How well acrid and saline substances are fitted to diminish obesity, may appear from

* Besides the means mentioned by the author, evacuations of different kinds ought to be occasionally made, especially by purging and sweating.

what has been said above in 1616. What effects vinegar, soap, or other substances employed, have had in reducing corpulency, there have not proper opportunities of observing occurred to me : but I am well persuaded, that the inducing a saline and acrid state of the blood, may have worse consequences than the corpulency it was intended to correct ; and that no person should hazard these, while he may have recourse to the more safe and certain means of abstinence and exercise.

CHAPTER II.

OF FLATULENT SWELLINGS.

1627.] **T**HE cellular texture of the human body very readily admits of air, and allows the same to pass from any one to every other part of it. Hence Emphysemata have often appeared from air collected in the cellular texture under the skin, and in several other parts of the body. The flatulent swellings under the skin, have indeed most commonly appeared in consequence of air immediately introduced from without : but in some instances of flatulent swellings, especially those of the internal parts not communicating with the alimentary canal, such an introduction cannot be perceived or supposed ; and therefore, in these cases, some other cause of the production and collection of air must be looked for, though it is often not to be clearly ascertained.

In every solid as well as every fluid substance which makes a part of the human body, there is a considerable quantity of air in a fixed state, which may be again restored to its elastic state, and separated from those substances, by the power of heat, putrefaction, and perhaps other causes : but which of these may have produced the several instances of pneumatosis and flatulent swellings, that have been recorded by authors, I cannot pretend to ascertain. Indeed upon account of these difficulties, I cannot proceed with any clearness on the general subject of pneumatosis ; and therefore, with regard to flatulent swellings, I find it necessary to confine myself to the consideration of those of the abdominal region alone ; which I shall now treat of under the general name of Tympanites.

1628.] The tympanites is a swelling of the abdomen.

in which the teguments appear to be much stretched by some distending power within, and equally stretched in every posture of the body. The swelling does not readily yield to any pressure; and in so far as it does, very quickly recovers its former state upon the pressure being removed. Being struck, it gives a sound like a drum, or other stretched animal membranes. No fluctuation within is to be perceived; and the whole feels less weighty than might be expected from its bulk. The uneasiness of the distension is commonly relieved by the discharge of air from the alimentary canal, either upwards or downwards.

1629.] These are the characters by which the tympanites may be distinguished from the ascites or physconia; and many experiments show, that the tympanites always depends upon a preternatural collection of air, somewhere within the teguments of the abdomen: but the seat of the air is in different cases somewhat different; and this produces the different species of the disease.

One species is, when the air collected is entirely confined within the cavity of the alimentary canal, and chiefly in that of the intestines. This species, therefore, is named the *Tympanites intestinalis*, Sauv. sp. 1. It is, of all others, the most common; and to it especially belong the characters given above.

A second species is, when the air collected is not entirely confined to the cavity of the intestines, but is also present between their coats; and such is that which it named by Sauvages *Tympanites enterophysodes*, Sauv. sp. 3. This has certainly been a rare occurrence; and has probably occurred only in consequence of the *tympanites intestinalis*, by the air escaping from the cavity of the intestines into the interstices of the coats. It is, however, possible that an erosion of the internal coat of the intestines may give occasion to the air, so constantly present in their cavity, to escape into the interstices of their coats, though in the whole of their cavity there has been no previous accumulation.

A third species is, when the air is collected in the sac of the peritonæum, or what is commonly called the cavity of the abdomen, that is, the space between the peritonæum and viscera; and then the disease is named *Tympanites abdominalis*, Sauv. sp. 2. The existence of such a tympanites, without any *tympanites intestinalis*, has been disputed; and it certainly has been a rare occurrence: but

from several dissections, it is unquestionable that such a disease has sometimes truly occurred.

A fourth species of tympanites is, when the *tympanites intestinalis* and *abdominalis* are joined together, or take place at the same time. With respect to this, it is probable that the *tympanites intestinalis* is the primary disease; and the other, only a consequence of the air escaping, by an erosion or rupture of the coats of the intestines, from the cavity of these into that of the abdomen. It is indeed possible that in consequence of erosion or rupture, the air which is so constantly present in the intestinal canal, may escape from thence in such quantity into the cavity of the abdomen, as to give a *tympanites abdominalis* whilst there was no previous considerable accumulation of air in the intestinal cavity itself; but I have not facts to ascertain this matter properly.

A fifth species has also been enumerated. It is when a *tympanites abdominalis* happens to be joined with the *hydrops ascites*: and such a disease therefore is named by Sauvages *Tympanites asciticus*, Sauv. sp. 4. In most cases of tympanites, indeed, some quantity of serum has, upon dissection, been found in the sac of the peritonæum; but that is not enough to constitute the species now mentioned; and when the collection of serum is more considerable, it is commonly where, both from the causes which have preceded, and likewise from the symptoms which attend, the ascites may be considered as the primary disease; and therefore that this combination does not exhibit a proper species of the tympanites.

1630.] As this last is not a proper species, and as some of the others are not only extremely rare, but even, when occurring, are neither primary, nor to be easily distinguished, nor, as considered in themselves, admitting of any cure, I shall here take no further notice of them; confining myself in what follows, to the consideration of the most frequent case, and almost the only object of practice, the *Tympanites intestinalis*.

1631.] With respect to this, I cannot perceive that it arises in any peculiar temperament, or depends upon any predisposition, which can be discerned. It occurs in either sex, at every age, and frequently in young persons.

1632.] Various remote causes of it have been assigned: but many of these have not commonly the effect of producing this disease; and although some of them have been

truly antecedents of it, I can in few instances discover the manner in which they produce the disease, and therefore cannot certainly ascertain them to have been causes of it.

1633.] The phenomena of this disease in its several stages are the following :

The tumor of the belly sometimes grows very quickly to a considerable degree, and seldom in the slow manner the ascites commonly comes on. In some cases, however, the tympanites comes on gradually, and is introduced by an unusual flatulency of the stomach and intestines, with frequent borborygmy, and uncommonly frequent expulsion of air upwards and downwards. This state is also frequently attended with colic pains, especially felt about the navel, and upon the sides towards the back ; but generally as the disease advances, these pains become less considerable. As the disease advances, there is a pretty constant desire to discharge air, but it is accomplished with difficulty ; and when obtained, although it give some relief from the sense of distention, this relief is commonly transient and of short duration. While the disease is coming on, some inequality of tumor and tension may be perceived in different parts of the belly ; but the distention soon becomes equal over the whole, and exhibits the phenomena mentioned in the character. Upon the first coming on of the disease, as well as during its progress, the belly is bound, and the fæces discharged are commonly hard and dry. The urine, at the beginning, is usually very little changed in quantity or quality from its natural state : but as the disease continues, it is commonly changed in both respects ; and at length sometimes a strangury, and even an ischuria, comes on. The disease has seldom advanced far, before the appetite is much impaired, and digestion ill performed : and the whole body, except the belly, becomes considerably emaciated. Together with these symptoms, a thirst and uneasy sense of heat at length come on, and a considerable frequency of pulse occurs, which continues throughout the course of the disease. When the tumor of the belly arises to a considerable bulk, the breathing becomes very difficult, with a frequent dry cough. With all these symptoms the strength of the patient declines : and the febrile symptoms daily increasing, death at length ensues, sometimes probably in consequence of a gangrene coming upon the intestines.

1634.] The tympanites is commonly of some duration,

and to be reckoned a chronic disease. It is very seldom quickly fatal, except where such an affection suddenly arises in fevers. To this Sauvages has properly given a different appellation, that of *Meteorismus* ; and I judge it may always be considered as a symptomatic affection, entirely distinct from the tympanites we are now considering.

1635.] The tympanites is generally a fatal disease, seldom admitting of cure : but what may be attempted in this way, I shall try to point out, after I shall have endeavored to explain the proximate cause, which alone can lay the foundation of what may be rationally attempted towards its cure.

1636.] To ascertain the proximate cause of tympanites, is somewhat difficult. It has been supposed in many cases, to be merely an uncommon quantity of air present in the alimentary canal, owing to the extrication and detachment of a greater quantity of air than usual from the alimentary matters taken in. Our vegetable aliments, I believe, always undergo some degree of fermentation ; and in consequence, a quantity of air is extricated and detached from them in the stomach and intestines : but it appears, that the mixture of the animal fluids which our aliments meet with in the alimentary canal, prevents the same quantity of air from being detached from them that would have been in their fermentation without such mixture ; and it is probable that the same mixture contributes also to the reabsorption of the air that had been before in some measure detached. The extrication, therefore, of an unusual quantity of air from the aliments, may, in certain circumstances, be such, perhaps as to produce a tympanites : so that this disease may depend upon a fault of the digestive fluids, whereby they are unfit to prevent the too copious extrication of air, and unfit also to occasion that reabsorption of air which in sound persons commonly happens. An unusual quantity of air in the alimentary canal, whether owing to the nature of the aliments taken in, or to the fault of the digestive fluid, does certainly sometimes take place ; and may possibly have, and in some measure certainly has, a share in producing certain flatulent disorders of the alimentary canal ; but cannot be supposed to produce the tympanites, which often occurs when no previous disorder had appeared in the system. Even in those cases of tympanites which are attended at their beginning with flatulent disorders in the whole of the alimentary canal, as we

know that a firm tone of the intestines both moderates the extrication of air and contributes to its reabsorption or ready expulsion, so the flatulent symptoms which happen to appear at the coming on of a tympanites, are, in my opinion, to be referred to a loss of tone in the muscular fibres of the intestines, rather than to any fault in the digestive fluids.

1637.] These, and other considerations, lead me to conclude, that the chief part of the proximate cause of tympanites, is a loss of tone in the muscular fibres of the intestines. But further, as air of any kind accumulated in the cavity of the intestines should, even by its own elasticity, find its way either upwards or downwards, and should also, by the assistance of inspiration, be entirely thrown out of the body ; so, when neither the reabsorption nor the expulsion takes place, and the air is accumulated so as to produce tympanites, it is probable that the passage of the air along the course of the intestines is in some places of these interrupted. This interruption, however, can hardly be supposed to proceed from any other cause than spasmodic constrictions in certain parts of the canal ; and I conclude, therefore, that such constrictions concur as part in the proximate cause of tympanites.—Whether these spasmodic constrictions are to be attributed to the remote cause of the disease, or may be considered as the consequence of some degree of atony first arising, I cannot with certainty, and do not find it necessary to determine.

1638.] Having thus endeavored to ascertain the proximate cause of tympanites, I proceed to treat of its cure ; which indeed has seldom succeeded, and almost never but in a recent disease. I must, however, endeavor to say what may be reasonably attempted ; what has commonly been attempted ; and what attempts have sometimes succeeded in the cure of this disease.

1639.] It must be a first indication to evacuate the air accumulated in the intestines : and for this purpose it is necessary that those constrictions, which had especially occasioned its accumulation, and continue to interrupt its passage along the course of the intestines should be removed. As these, however, can hardly be removed but by exciting the peristaltic motion in the adjoining portions of the intestines, purgatives have been commonly employed ; but it is at the same time agreed, that the more gentle laxatives only ought to be employed, as the more drastic, in the over-

stretched and tense state of the intestines, are in danger of bringing on inflammation.

It is for this reason, also, that glysters have been frequently employed ; and they are the more necessary, as the fæces collected are generally found to be in a hard and dry state. Not only upon account of this state of the fæces, but, farther, when glysters produce a considerable evacuation of air, and thus show that they have some effect in relaxing the spasms of the intestines, they ought to be repeated very frequently.

1640.] In order to take off the constrictions of the intestines, and with some view also to the carminative effects of the medicines, various antispasmodics have been proposed, and commonly employed ; but their effects are seldom considerable, and it is alledged that their heating and inflammatory powers have sometimes been hurtful. It is, however, always proper to join some of the milder kinds with both the purgatives and glysters that are employed ;* and it has been very properly advised to give always the chief of antispasmodics, that is, an opiate, after the operation of purgatives is finished.

1641.] In consideration of the overstretched, tense, and dry state of the intestines, and especially of the spasmodic constrictions that prevail, fomentations and warm bathing have been proposed as a remedy ; and are said to have been employed with advantage : but it has been remarked, that very warm baths have not been found so useful as tepid baths long continued.

1642.] Upon the supposition that this disease depends especially upon an atony of the alimentary canal, tonic remedies seem to be properly indicated. Accordingly chalybeates, and various bitters, have been employed ; and if any tonic, the Peruvain bark might probably be useful.

1643.] But as no tonic remedy is more powerful than cold applied to the surface of the body, and cold drink thrown into the stomach ; so such a remedy has been thought of in this disease. Cold drink has been constantly prescribed, and cold bathing has been employed with advantage ; and there have been several instances of the disease being

* The antispasmodics that are to be joined with purgatives, ought to be essential oils, especially the essential oils of umbelliferous plants, as oil of aniseed, oil of carui, &c. and their dose ought to be moderate. In many cases they may be used in repeated small doses by themselves on a piece of sugar. The dose of the ol. anisi ought not to exceed ten or twelve drops, nor of the ol. carui five drops ; larger doses are too heating. It may be proper also to observe, that the essential oils of the verticillated plants, as mint, marjoram, thyme, &c. are much too heating, and much more so those of the aromatics, as cloves, cinnamon, &c.

suddenly and entirely cured by the repeated application of snow to the lower belly.

1644.] It is hardly necessary to remark, that, in the diet of tympanitic persons, all sorts of food ready to become flatulent in the stomach are to be avoided; and it is probable, that the fossil acids and neutral salts, as antizymics, may be useful.*

1645.] In obstinate and desperate cases of tympanites, the operation of the paracentesis has been proposed: but it is a very doubtful remedy, and there is hardly any testimony of its having been practised with success. It must be obvious, that this operation is a remedy suited especially, and almost only, to the *tympanites abdominalis*; the existence of which, separately from the *intestinalis*, is very doubtful, at least not easily ascertained. Even if its existence could be ascertained, yet it is not very likely to be cured by this remedy; and how far the operation might be safe in the *tympanites intestinalis*, is not yet determined by any proper experience.

CHAPTER III.

OF WATERY SWELLINGS, OR DROPSIES.

1646.] **A** PRETERNATURAL collection of serous or watery fluids, is often formed in different parts of the human body; and although the disease thence arising be distinguished according to the different parts which it occupies, yet the whole of such collections come under the general appellation of Dropsies. At the same time, although the particular instances of such collection are to be distinguished from each other according to the parts they occupy, as well as by other circumstances attending them; yet all of them seem to depend upon some general causes, very much in common to the whole. Before proceeding, therefore, to consider the several species, it may be proper to endeavor to assign the general causes of dropsy.

1647.] In persons of health, a serous or watery fluid seems to be constantly poured out, or exhaled in vapor, into every cavity and interstice of the human body capable of

* The fossil acids are undoubtedly very powerful in resisting fermentation; and if the air in the intestines is produced by fermentation, they are consequently highly useful.

receiving it ; and the same fluid, without remaining long or being accumulated in these spaces, seems constantly to be soon again absorbed from thence by vessels adapted to the purpose. From this view of the animal economy, it will be obvious, that if the quantity poured out into any space, happens to be greater than the absorbents can at the same time take up, an unusual accumulation of serous fluid will be made in such parts ; or though the quantity poured out be not more than usual, yet if the absorption be anywise interrupted or diminished, from this cause also an unusual collection of fluids may be occasioned.

Thus, in general, dropsy may be imputed to an increased effusion, or to a diminished absorption ; and I therefore proceed to inquire into the several causes of these.

1648.] An increased effusion may happen, either from a preternatural increase of the ordinary exhalation, or from the rupture of vessels carrying, or of sacs containing, serous or watery fluids.

1649.] The ordinary exhalation may be increased by various causes, and particularly by an interruption given to the free return of the venous blood from the extreme vessels of the body to the right ventricle of the heart. This interruption seems to operate by resisting the free passage of the blood from the arteries into the veins, thereby increasing the force of the arterial fluids in the exhalants, and consequently the quantity of fluid which they pour out.

1650.] The interruption of the free return of the venous blood from the extreme vessels, may be owing to certain circumstances affecting the course of the venous blood ; very frequently, to certain conditions in the right ventricle of the heart itself, preventing it from receiving the usual quantity of blood from the vena cava ; or to obstructions in the vessels of the lungs preventing the entire evacuation of the right ventricle, and thereby hindering its receiving the usual quantity of blood from the cava. Thus, a polypus in the right ventricle of the heart, and the ossification of its valves, as well as all considerable and permanent obstructions of the lungs, have been found to be causes of dropsy.

1651.] It may serve as an illustration of the operation of these general causes, to remark, that the return of the venous blood is in some measure resisted when the posture of the body is such as gives occasion to the gravity of the blood to oppose the motion of it in the veins, which takes effect when the force of the circulation is weak ; and from whence

it is that an upright posture of the body produces or increases serous swellings in the lower extremities.

1652.] Not only those causes interrupting the motion of the venous blood more generally, but, farther, the interruption of it in particular veins, may likewise have the effect of increasing exhalation, and producing dropsy. The most remarkable instance of this is, when considerable obstructions of the liver prevent the blood from flowing freely into it from the vena portarum and its numerous branches; and hence these obstructions are a frequent cause of dropsy.

1653.] Scirrhosities of the spleen and other viscera, as well as the scirrhusity of the liver, have been considered as causes of dropsy; but the manner in which they can produce the disease, I do not perceive, except it may be where they happen to be near some considerable vein, by the compression of which they may occasion some degree of ascites; or, by compressing the vena cava, may produce an anasarca of the lower extremities. It is indeed true, that scirrhosities of the spleen and other viscera, have been frequently discovered in the bodies of hydropic persons: but I believe that they have been seldom found unless when scirrhosities of the liver were also present; and I am inclined to think, that the former have been the effects of the latter, rather than the cause of the dropsy; or that, if scirrhosities of the other viscera have appeared in hydropic bodies when that of the liver was not present, they must have been the effects of some of those causes of dropsy to be hereafter mentioned; and consequently to be the accidental attendants, rather than the causes, of such dropsies.

1654.] Even in smaller portions of the venous system, the interruption of the motion of the blood in particular veins has had the same effect. Thus a polypus formed in the cavity of a vein, or tumors formed in its coats, preventing the free passage of the blood through it, have had the effect of producing dropsy in parts towards the extremity of such veins.

1655.] But the cause most frequently interrupting the motion of the blood through the veins is, the compression of tumors existing near to them; such as aneurisms in the arteries, abscesses, and scirrhus or steatomatous tumors in the adjoining parts.

To this head may be referred the compression of the descending cava by the bulk of the uterus in pregnant women, and the compression of the same by the bulk of water in the

ascites ; both of which compressions frequently produce serous swellings in the lower extremities.

1656.] It may be supposed, that a general preternatural plethora of the venous system may have the effect of increasing exhalation ; and that this plethora may happen from the suppression of fluxes, or evacuations of blood, which had for some time taken place in the body, such as the menstrual and hemorrhoidal fluxes. A dropsy, however, from such a cause, has been at least a rare occurrence ; and when it seems to have happened, I should suppose it owing to the same causes as the suppression itself, rather than to the plethora produced by it.

1657.] One of the most frequent causes of an increased exhalation, I apprehend to be the laxity of the exhalant vessels. That such a cause may operate, appears probable from this, that paralytic limbs, in which such a laxity is to be suspected, are frequently affected with serous, or as they are called, œdematous swellings.

But a much more remarkable and frequent example of its operation occurs in the case of a general debility of the system, which is so often attended with dropsy. That a general debility does induce dropsy, appears sufficiently from its being so commonly the consequence of powerfully debilitating causes ; such as fevers, either of the continued or intermittent kind, which have lasted long ; long continued and somewhat excessive evacuations of any kinds ; and in short, almost all diseases that have been of long continuance, and have at the same time induced the other symptoms of a general debility.

Among other causes inducing a general debility of the system, and thereby dropsy, there is one to be mentioned as frequently occurring, and that is, intemperance in the use of intoxicating liquors ; from whence it is that drunkards of all kinds, and especially dram-drinkers, are so affected with this disease.

1658.] That a general debility may produce a laxity of the exhalants, will be readily allowed : and that by this especially it occasions dropsy, I judge from thence, that while most of the causes already mentioned are suited to produce dropsies of particular parts only, the state of general debility gives rise to an increased exhalation into every cavity and interstice of the body, and therefore brings on a general disease. Thus, we have seen effusions of a serous fluid made, at the same time, into the cavity of the cranium, in-

to that of the thorax and the abdomen, and likewise into the cellular texture almost over the whole of the body. In such cases, the operation of a general cause discovered itself, by these several dropsies increasing in one part as they diminish in another, and this alternately in the different parts. This combination, therefore, of the different species of dropsy, or rather, as it may be termed, this universal dropsy, must, I think, be referred to a general cause; and in most instances, hardly any other can be thought of, but a general laxity of the exhalants. It is this, therefore, that I call the *hydropic diathesis*; which frequently operates by itself; and frequently, in some measure, concurring with other causes, is especially that which gives them their full effect.

This state of the system, in its first appearance, seems to be what has been considered as a particular disease under the name of *Cachexy*; but in every instance of it that has occurred to me, I have always considered, and have always found, it to be the beginning of general dropsy.

1659.] The several causes of dropsy already mentioned may produce the disease, although there be no preternatural abundance of serous or watery fluid in the blood-vessels; but it is now to be remarked, that a preternatural abundance of that kind may often give occasion to the disease, and more especially when such abundance concurs with the causes above enumerated.

One cause of such preternatural abundance may be an unusual quantity of water taken into the body. Thus, an unusual quantity of water taken in by drinking, has sometimes occasioned a dropsy. Large quantities of water, it is true, are upon many occasions taken in; and being as readily thrown out again by stool, urine, or perspiration, have not produced any disease. But it is also certain, that, upon some occasions, an unusual quantity of watery liquors taken in has run off by the several internal exhalants, and produced a dropsy. This seems to have happened, either from the excretories not being fitted to throw out the fluid so fast as it had been taken in, or from the excretories having been obstructed by accidentally concurring causes. Accordingly it is said, that the sudden taking in of a large quantity of very cold water, has produced dropsy, probably from the cold producing a constriction of the excretories.

The proportion of watery fluid in the blood may be in-

creased, not only by the taking in a large quantity of water by drinking, as now mentioned, but it is possible that it may be increased also by water taken in from the atmosphere by the skin in an absorbing or imbibing state. It is well known that the skin may be, at least, occasionally in such a state; and it is probable, that in many cases of beginning dropsy, when the circulation of the blood on the surface of the body is very languid, that the skin may be changed from a perspiring to an imbibing state; and thus, at least, the disease may be very much increased.

1660.] A second cause of a preternatural abundance of watery fluids in the blood-vessels, may be, an interruption of the ordinary watery excretions; and accordingly it is alledged, that persons much exposed to a cold and moist air are liable to dropsy. It is also said, that an interruption, or considerable diminution, of the urinary secretion, has produced the disease; and it is certain, that, in the case of an *ischuria renalis*, the serosity retained in the blood-vessels has been poured out into some internal cavities, and has occasioned dropsy.

1661.] A third cause of an over proportion of serous fluid in the blood ready to run off by the exhalants, has been very large evacuations of blood, either spontaneous or artificial. These evacuations, by abstracting a large proportion of red globules and gluten, which are the principal means of retaining serum in the red vessels, allow the serum to run off more readily by the exhalants: and hence dropsies have been frequently the consequence of such evacuations.

It is possible also, that large and long-continued issues, by abstracting a large proportion of gluten, may have the same effect.

An over-proportion of the serous parts of the blood, may not only be owing to the *spoliation* just now mentioned, but may, I apprehend, be likewise owing to a fault in the digesting and assimilating powers in the stomach and other organs; whereby they do not prepare and convert the aliments taken in, in such a manner as to produce from them the due proportion of red globules and gluten; but, still continuing to supply the watery parts, occasion these to be in an over-proportion, and consequently ready to run off in too large quantity by the exhalants. It is in this manner that we explain the dropsy, so often attending chlorosis: which appears always at first by a pale color of the whole body, showing a manifest deficiency of red blood; which in that

disease can only be attributed to an imperfect digestion and assimilation.

Whether a like imperfection takes place in what has been called a *Cachexy*, I dare not determine. This disease indeed has been commonly and very evidently owing to the general causes of debility above-mentioned: and it being probable that the general debility may affect the organs of digestion and assimilation; so the imperfect state of these functions, occasioning a deficiency of red globules and gluten, may often concur with the laxity of the exhalants in producing dropsy.

1662.] These are the several causes of increased exhalation, which I have mentioned as the chief cause of the effusion producing dropsy; but I have likewise observed in 1648, that with the same effect, an effusion may also be made by the rupture of vessels carrying watery fluids.

In this way, a rupture of the thoracic duct, has given occasion to an effusion of chyle and lymph into the cavity of the thorax; and a rupture of the lacteals has occasioned a like effusion into the cavity of the abdomen; and in either case, a dropsy has been produced.

It is sufficiently probable, that a rupture of lymphatics, in consequence of strains, or the violent compression of neighboring muscles, has occasioned an effusion; which, being diffused in the cellular texture, has produced dropsy.

It belongs to this head of causes, to remark, that there are many instances of a rupture or erosion of the kidneys, ureters, and bladder of urine; whereby the urine has been poured into the cavity of the abdomen, and produced an ascites.

1663.] Upon this subject, of the rupture of vessels carrying, or of vesicles containing, watery fluids, I must observe, that the dissection of dead bodies has often shown vesicles formed upon the surface of many of the internal parts; and it has been supposed, that the rupture of such vesicles, commonly named *Hydatides*, together with their continuing to pour out a watery fluid, has been frequently the cause of dropsy. I cannot deny the possibility of such a cause, but suspect the matter must be explained in a different manner.

There have been frequently found, in almost every different part of animal bodies, collections of spherical vesicles, containing a watery fluid; and in many cases of supposed dropsy, particularly in those called the preternatural

encysted dropsies, the swelling has been entirely owing to a collection of such hydatides. Many conjectures have been formed with regard to the nature and production of these vesicles: but the matter at last seems to be ascertained. It seems to be certain, that each of these vesicles has within it, or annexed to it, a living animal of the worm kind; which seems to have the power of forming a vesicle for the purpose of its own economy, and of filling it with a watery fluid drawn from the neighbouring parts: and this animal has therefore been properly named by late naturalists the *Tenia hydatigena*. The origin and economy of this animal, or an account of the several parts of the human body which it occupies, I cannot prosecute further here; but it was proper for me, in delivering the causes of dropsy, to say thus much of hydatides: and I must conclude with observing, I am well persuaded, that most of the instances of preternatural encysted dropsies which have appeared in many different parts of the human body, have been truly collections of such hydatides; but how the swellings occasioned by these are to be distinguished from other species of dropsy, or how they are to be treated in practice, I cannot at present determine.

1654.] After having mentioned these, I return to consider the other general cause of dropsy, which I have said in 1647 may be, An interruption or diminution of the absorption that should take up the exhaled fluids from the several cavities and interstices of the body; the causes of which interruption, however, are not easily ascertained.

1665.] It seems probable, that absorption may be diminished, and even cease altogether, from a loss of tone in the absorbent extremities of the lymphatics. I cannot indeed doubt that a certain degree of tone or active power is necessary in these absorbent extremities; and it appears probable, that the same general debility which produces that laxity of the exhalant vessels, wherein I have supposed the hydropic diathesis to consist, will at the same time occasion a loss of tone in the absorbents; and therefore that a laxity of the exhalants will generally be accompanied with a loss of tone in the absorbents; and that this will have a share in the production of dropsy. Indeed it is probable that the diminution of absorption has a considerable share in the matter; as dropsies are often cured by medicines which seem to operate by exciting the action of the absorbents.

1666.] It has been supposed, that the absorption performed by the extremities of lymphatics may be interrupted by an obstruction of these vessels, or at least of the conglobate glands through which these vessels pass. This, however, is very doubtful. As the lymphatics have branches frequently communicating with one another, it is not probable that the obstruction of any one, or even several of these, can have any considerable effect in interrupting the absorption of their extremities.

And for the same reason it is as little probable that the obstruction of conglobate glands can have such an effect: at least it is only an obstruction of the glands of the mesentery, through which so considerable a portion of the lymph passes, that can possibly have the effect of interrupting absorption. But even this we should not readily suppose, there being reason to believe that these glands, even in a considerably tumefied state, are not entirely obstructed: and accordingly I have known several instances of the most part of the mesenteric glands being considerably tumefied, without either interrupting the transmission of fluids to the blood-vessels, or occasioning any dropsy.

An hydropic swelling, indeed, seems often to affect the arm from a tumor of the axillary gland: but it seems to me doubtful, whether the tumor of the arm may not be owing to some compression of the axillary vein, rather than to an obstruction of the lymphatics.

1667.] A particular interruption of absorption may be supposed to take place in the brain. As no lymphatic vessels have yet very certainly been discovered in that organ, it may be thought that the absorption, which certainly takes place there, is performed by the extremities of veins, or by vessels that carry the fluid directly into the veins; so that any impediment to the free motion of the blood in the veins of the brain, may interrupt the absorption there, and occasion that accumulation of serous fluid which so frequently occurs from a congestion of blood in these veins. But I give all this as a matter of conjecture only.

1668.] Having thus explained the general causes of dropsy, I should proceed, in the next place, to mention the several parts of the body in which serous collections take place, and so to mark the different species of dropsy: but I do not think it necessary for me to enter into any minute detail upon this subject. In many cases, these collections, are not to be ascertained by any external symp-

toms and therefore cannot be the objects of practice ; and many of them, though in some measure discernible, do not seem to be curable by our art. I the more especially avoid mentioning very particularly the several species, because that has already been sufficiently done by Dr. D. Monro, and other writers in every body's hands. I must confine myself here to the consideration of those species which are the most frequently occurring and the most common objects of our practice ; which are, the Anasarca, Hydrothorax, and Ascites and each of these I shall treat of in so many separate sections.

SECTION I.

Of Anasarca.

1669.] THE Anasarca is a swelling upon the surface of the body, at first commonly appearing in particular parts only, but at length frequently appearing over the whole. So far as it extends, it is an uniform swelling over the whole member, at first always soft, and readily receiving the pressure of the finger, which forms a hollow that remains for some little time after the pressure is removed, but at length rises again to its former fulness. This swelling generally appears, first, upon the lower extremities : and there too only in the evening, disappearing again in the morning. It is usually more considerable as the person has been more in an erect posture during the day ; but there are many instances of the exercise of walking preventing altogether its otherwise usual coming on. Although this swelling appears at first only upon the feet and about the ankles ; yet if the causes producing it continue to act, it gradually extends upwards, occupying the legs, thighs, and trunk of the body, and sometimes even the head. Commonly the swelling of the lower extremities diminishes during the night ; and in the morning, the swelling of the face is most considerable, which again generally disappears almost entirely in the course of the day.

1670.] The terms of *Anasarca* and *Leucophlegmatia* have been commonly considered as synonymous : but some authors have proposed to consider them as denoting distinct diseases. The authors who are of this last opinion employ the name of *Anasarca* for that disease which begins

in the lower extremities, and is from thence gradually extended upwards in the manner I have just now described; while the term *Leucophlematia*, that in which the same kind of swelling appears even at first very generally over the whole body. They seem to think also, that the two diseases proceed from different causes; and that, while the anasarca may arise from the several causes in 1649—1660, the leucophlegmatia proceeds especially from a deficiency of red blood, as we have mentioned in 1661, *et seq.* I cannot, however, find any proper foundation for this distinction. For although in dropsies proceeding from the causes mentioned in 1661, *et seq.* the disease appears in some cases more immediately affecting the whole body; yet that does not establish a difference from the common case of anasarca: for the disease, in all its circumstances, comes at length to be entirely the same; and in cases occasioned by a deficiency of red blood, I have frequently observed it to come on exactly in the manner of an anasarca, as above described.

1671.] An *anasarca* is evidently a preternatural collection of serous fluid in the cellular texture immediately under the skin. Sometimes pervading the skin itself, it oozes out through the pores of the cuticle; and sometimes, too gross to pass by these, it raises the cuticle in blisters. Sometimes the skin, not allowing the water to pervade it, is compressed and hardened, and at the same time so much distended, as to give anasarcaous tumors an unusual firmness. It is in these last circumstances also that an erythematic inflammation is ready to come upon anasarcaous swellings.

1672.] An *anasarca* may immediately arise from any of the several causes of dropsy which act more generally upon the system: and even when other species of dropsy, from particular circumstances, appear first; yet whenever these proceed from any causes more generally affecting the system, an *anasarca* sooner or later comes always to be joined with them.

1673.] The manner in which this disease commonly first appears, will be readily explained by what I have said in 1651, respecting the effects of the posture of the body. Its gradual progress, and its affecting, after some time, not only the cellular texture under the skin, but probably also much of the same texture in the internal parts, will be understood partly from the communication that is readily made between the several parts of the cellular texture; but especially from

the same general causes of the disease producing their effects in every part of the body. It appears to me, that the water of anasarca swellings is more readily communicated to the cavity of the thorax, and to the lungs, than to the cavity of the abdomen, or to the viscera contained in it.

1674.] An anasarca is almost always attended with a scarcity of urine ; and the urine voided, is, from its scarcity, always of a high color ; and from the same cause, after cooling, readily lets fall a copious reddish sediment. This scarcity of urine may sometimes be owing to an obstruction of the kidneys ; but probably is generally occasioned by the watery parts of the blood running off into the cellular texture, and being thereby prevented from passing in the usual quantity to the kidneys.

The disease is also generally attended with an unusual degree of thirst ; a circumstance I would attribute to a like abstraction of fluid from the tongue and fauces, which are extremely sensible to every diminution of the fluid in these parts.

1675.] The cure of anasarca is to be attempted upon three general indications.

1. The removing the remote causes of the disease.
2. The evacuation of the serous fluid already collected in the cellular texture.
3. The restoring the tone of the system, the loss of which may be considered in many cases as the proximate cause of the disease.

1676.] The remote causes are very often such as had not only been applied, but had also been removed* long before the disease came on. Although, therefore, their effects remain, the causes themselves cannot be the objects of practice ; but if the causes still continue to be applied, such as intemperance, indolence, and some others, they must be removed. For the most part, the remote causes are certain diseases previous to the dropsy, which are to be cured by the remedies particularly adapted to them, and cannot be treated of here. The curing of these, indeed, may be often difficult ; but it was proper to lay down the present indication, in order to show, that when these remote causes cannot be removed, the cure of the dropsy must be difficult, or perhaps impossible. In many cases, therefore, the following indications will be to little pur-

* These are large evacuations of different kinds, but especially hæmorrhages, which have ceased before the dropsy came on.

pose ; and particularly, that often the execution of the second, will not only give the patient a great deal of fruitless trouble, but commonly also hurry on his fate.

1677.] The second indication for evacuating the collected serum, may be sometimes executed with advantage, and often, at least, with temporary relief. It may be performed in two ways. First, by drawing off the water directly from the dropsical part, by openings made into it for that purpose : or, secondly, by exciting certain serous excretions ; in consequence of which, an absorption may be excited in the dropsical parts, and thereby the serum absorbed and carried into the blood-vessels may afterwards be directed to run out, or may spontaneously pass out, by one or other of the common excretions.

1678.] In an anasarca, the openings into the dropsical part are commonly to be made in some part of the lower extremities ; and will be most properly made by many small punctures reaching the cellular texture. Formerly, considerable incisions were employed for this purpose : but as any wound made in dropsical parts, which, in order to their healing, must necessarily inflame and suppurate, are liable* to become gangrenous ; so it is found to be much safer to make the openings by small punctures only, which may heal up by the first intention. At the same time, even with respect to these punctures, it is proper to observe, that they should be made at some distance from one another, and that care should be taken to avoid making them in the most depending parts.

1679.] The water of anasarcaous limbs may be sometimes drawn off by pea-issues, made by caustic a little below the knees : for as the great swelling of the lower extremities is chiefly occasioned by the serous fluid exhaled into the upper parts constantly falling down to the lower ; so the issues now mentioned, by evacuating the water from the upper parts, may very much relieve the whole of the disease. Unless, however, the issues be put in before the disease is far advanced, and before the parts have very much lost their tone, the places of the issues are ready to become affected with gangrene.

Some practical writers have advised the employment of setons, for the same purpose that I have proposed issues ;

* Peculiarly liable in this disease on account of the diminished tone, and consequently the diminished strength of the parts.

but I apprehend, that setons will be more liable than issues to the accident just now mentioned.

1680.] For the purpose of drawing out serum from anasaruous limbs, blisters have been applied to them, and sometimes with great success ; but the blistered parts are ready to have a gangrene come upon them. Blistering is therefore to be employed with great caution : and perhaps only in the circumstances that I have mentioned above to be fit for the employment of issues.

1681.] Colewort-leaves applied to the skin, readily occasion a watery exudation from its surface ; and applied to the feet and legs affected with anasarca, have sometimes drawn off the water very copiously, and with great advantage.

Analogous, as I judge, to this, oiled silk-hose put upon the feet and legs, so as to shut out all communication with the external air, have been found sometimes to draw a quantity of water from the pores of the skin, and are said in this way to have relieved anasaruous swellings ; but in several trials made, I have never found either the application of these hose, or that of the colewort-leaves, of much service.*

1682.] The second means proposed in 1677, for drawing off the water from dropsical places, may be the employment of emetics, purgatives, diuretics, or sudorifics.

1683.] As spontaneous vomiting has sometimes excited an absorption in hydropic parts, and thereby drawn off the waters lodged in them, it is reasonable to suppose that vomiting excited by art may have the same effect ; and accordingly it has been often practised with advantage. The practice, however, requires that the strong antimonial emetics be employed, and that they be repeated frequently after short intervals.

1684.] Patients submit more readily to the use of purgatives, than to those of emetics ; and indeed they commonly bear the former more easily than the latter. At the same time, there are no means we can employ to procure a copious evacuation of serous fluids with greater certainty than the operation of purgatives, and it is upon these accounts that purging is the evacuation which has been most frequently, and perhaps with most success, employed in dropsy. It has been generally found necessary to employ purgatives of the more drastic kind ; which are commonly

* How does this last agree with the first sentence of this article?

known, and need not to be enumerated here.* I believe, indeed, that the more drastic purgatives are the most effectual for exciting absorption, as their stimulus is most readily communicated to the other parts of the system ; but of late an opinion has prevailed, that some milder purgatives may be employed with advantage. This opinion has prevailed particularly with regard to the crystals vulgarly called the Cream of Tartar, which in large doses, frequently repeated, have sometimes answered the purpose of exciting large evacuations both by stool and urine, and has thereby cured dropsies. This medicine, however, has frequently failed, both in its operation and effects, when the drastic purgatives have been more successful.

Practitioners have long ago observed, that in the employment of purgatives, it is requisite they be repeated after as short intervals as the patient can bear ; probably for this reason, that when the purging is not carried to the degree of soon exciting an absorption, the evacuation weakens the system, and thereby increases the afflux of fluids to the hydropic parts.

1685.] The kidneys afford a natural outlet for a great part of the watery fluids contained in the blood-vessels ; and the increasing the excretion by the kidneys to a considerable degree, is a means as likely as any other of exciting an absorption in dropsical parts. It is upon this account that diuretic medicines have been always properly employed in

* The Drastic purgatives are Jalap, Colocynth, Gamboge, Scammony, &c. Their drastic quality however depends very much on the dose in which they are given, small doses being gently laxative, while large ones are very violent in their operation. They ought seldom to be given alone, but in conjunction with some aromatic, which greatly increases their action, and at the same time prevents the uneasiness of griping, with which their operation is frequently attended : most of these drastics being resinous substances, they are difficultly soluble in the alimentary canal, or if reduced to a powder they are liable to concreate ; in either case their action is impeded. To remedy these inconveniences, it is usual to add to them some salt, which both divides the resin and prevents its concretion ; and consequently increases its action. For these reasons, we find in the shops many formulæ, in which the drastic resins are mixed with either salts or aromatics, or both : as, the Pulvis Aloeticus, Pulvis e Scammonio compositus, Pulvis e Scammonio cum Aloe, Pulvis e senna compositus, and Electuarium e Scammonio of the London Pharmacopœia ; and, the Pulvis e Jalappa compositus, Pulvis e Scammonio compositus, Pilulæ Aloeticæ, Pilulæ ex colocynthide cum Aloe, Pilulæ e Jalappa, and Pilulæ Rufi of the Edinburgh Pharmacopœia.

Any of the foregoing compositions, if given in sufficient doses, are very active and brisk purges. Many more might be contrived, and on some occasions may be necessary. For procuring a brisk discharge of fluids, an addition of Calomel is remarkably efficacious as in the following formula :

Rx. Scammon.
Calomel.
Crem. Tart.
Zinzib āā. p. x.
M. f. Pulv.

The dose of this powder is two scruples or a drachm, it is extremely active and ought to be used with care, the patients being kept moderately warm, and drinking some thin mucilaginous liquor during its operation.

the cure of dropsy. The various diuretics that may be employed, are enumerated in every treatise of the *Materia Medica* and of the *Practice of Physic*, and therefore need not be repeated here. It happens, however, unluckily, that none of them are of very certain operation ; neither is it well known why they sometimes succeed, and why they so often fail ; nor why one medicine should prove of service when another does not. It has been generally the fault of writers upon the *Practice of Physic*, that they give us instances of cases in which certain medicines have proved very efficacious, but neglect to tell us in how many other instances the same have failed.

1686.] It deserves to be particularly observed here, that there is hardly any diuretic more certainly powerful than a large quantity of common water taken in by drinking. I have indeed observed above in 1659, that a large quantity of water, or of watery liquors, taken in by drinking, has sometimes proved a cause of dropsy ; and practitioners have been formerly so much afraid that watery liquors taken in by drinking might run off into the dropsical places and increase the disease, that they have generally enjoined the abstaining, as much as possible, from such liquors. Nay, it has been further asserted, that by avoiding this supply of exhalation, and by a total abstinence from drink, dropsies have been entirely cured. What conclusion is to be drawn from these facts, is however, very doubtful. A dropsy arising from a large quantity of liquids taken into the body, has been a very rare occurrence ; and there are, on the other hand, innumerable instances of very large quantities of water having been taken in and running off again very quickly by stool and urine, without producing any degree of dropsy. With respect to the total abstinence from drink, it is a practice of the most difficult execution ; and therefore has been so seldom practised, that we cannot possibly know how far it might prove effectual. The practice of giving drink very sparingly, has indeed been often employed : but in a hundred instances I have seen it carried to a great length without any manifest advantage ; while, on the contrary, the practice of giving drink very largely has been found not only safe, but very often effectual in curing the disease. The ingenious and learned Dr. Millman has, in my opinion, been commendably employed in restoring the practice of giving large quantities of watery liquors for the cure of dropsy. Not only from the in-

stances he mentions from his own practice, and from that of several eminent physicians in other parts of Europe, but also from many instances in the records of physic, of the good effects of drinking large quantities of mineral waters in the cure of dropsy, I can have no doubt of the practice recommended by Dr. Millman being very often extremely proper. I apprehend it to be especially adapted to those cases in which the cure is chiefly attempted by diuretics. It is very probable that these medicines can hardly be carried in any quantity to the kidneys without being accompanied with a large portion of water; and the late frequent employment of the crystals of tartar has often shown, that the diuretic effects of that medicine are almost only remarkable when accompanied with a large quantity of water; and that without this, the diuretic effects of the medicine seldom appear.

I shall conclude this subject with observing, that as there are so many cases of dropsy absolutely incurable, the practice now under consideration may often fail, yet in most cases it may be safely tried; and if it appear that the water taken in passes readily by the urinary secretion, and especially that it increases the urine beyond the quantity of drink taken in, the practice may probably be continued with great advantage: but, on the contrary, if the urine be not increased, or be not even in proportion to the drink taken in, it may be concluded, that the water thrown in runs off by the exhalants, and will augment the disease.

1687.] Another set of remedies which may be employed for exciting a serous excretion, and thereby curing dropsy, is that of sudorifics. Such remedies, indeed, have been sometimes employed: but however useful they may have been thought, there are few accounts of their having effected a cure; and although I have had some examples of their success, in most instances of their trial they have been ineffectual.

Upon this subject it is proper to take notice of the several means that have been proposed and employed for dissipating the humidity of the body; and particularly that of heat externally applied to the surface of it. Of such applications I have had no experience; and their propriety and utility must rest upon the credit of the authors who relate them. I shall offer only this conjecture upon the subject: that if such measures have been truly useful, as it has seldom been by the drawing out of any sensible humidity, it

has probably been by their restoring the perspiration, which is so often greatly diminished in this disease ; or, perhaps, by changing the state of the skin, from the imbibing condition which is alledged to take place, into that of perspiring.

1688.] When, by the several means now mentioned, we shall have succeeded in evacuating the water of dropsies, there will then especially be occasion for our third indication ; which is, to restore the tone of the system, the loss of which is so often the cause of the disease. This indication, indeed, may properly have place from the very first appearance of the disease ; and certain measures adapted to this purpose may, upon such first appearance, be employed with advantage. In many cases of a moderate disease, I am persuaded that they may obviate any future increase of it.

1689.] Thus, upon what is commonly the first symptom of anasarca, that is, upon the appearance of what are called Oedematous Swellings of the feet and legs, the three remedies of bandaging, friction, and exercise, have often been used with advantage.

1690.] That some degree of external compression is suited to support the tone of the vessels, and particularly to prevent the effects of the weight of the blood in dilating those of the lower extremities, must be sufficiently evident ; and the giving that compression by a bandage properly applied, has been often useful. In applying such a bandage, care is to be taken that the compression may never be greater on the upper than on the lower part of the limb ; and this, I think, can hardly ever be so certainly avoided, as by employing a properly constructed laced stocking.

1691.] Friction is another means by which the action of the blood-vessels may be promoted, and thereby the stagnation of fluids in their extremities prevented. Accordingly, the use of the flesh-brush has often contributed to discuss œdematous swellings. It appears to me, that friction, for the purposes now mentioned, is more properly employed in the morning, when the swelling is very much gone off, than in the evening, when any considerable degree of it has already come on. I apprehend also, that friction being made from below upwards only, is more useful than when made alternately upwards and downwards. It has been common, instead of employing the flesh-brush, to make friction by warm and dry flannels ; and this may in some cases be the most convenient : but I cannot perceive

that the impregnation of these flannels with certain dry fumes is of any benefit.

1692.] With respect to exercise, I must observe, that although persons being much in an erect posture during the day, may seem to increase the swelling which comes on at night; yet as the action of the muscles has a great share in promoting the motion of the venous blood, so I am certain, that as much exercise in walking as the patient can easily bear, will often prevent that œdometous swelling, which much standing, and even sitting, would have brought on.

1693.] These measures, however, although they may be useful at the coming on of a dropsy, whose causes are not very powerful, will be often insufficient in a more violent disease; and such therefore will require more powerful remedies. These are, exercise and tonic medicines; which may be employed both during the course of the disease and especially after the water has been evacuated.

1694.] Exercise is suited to assist in every function of the animal œconomy, particularly to promote perspiration, and thereby prevent the accumulation of watery fluids in the body. I apprehend also, that it may be the most effectual means for preventing the skin from being in an imbibing state; and, as it has been hinted above on the subject of Emaciation (1608.) I am persuaded, that a full and large perspiration will always be a means of exciting absorption in every part of the system. Exercise, therefore, promises to be highly useful in dropsy; and any mode of it may be employed that the patient can most conveniently admit of. It should, however, always be as much as he can easily bear: and in anasarca, the share which the exercise of muscles has in promoting the motion of the venous blood, induces me to think that bodily exercise, to whatever degree the patient can bear it, will always be the most useful. From some experience also, I am persuaded, that by exercise alone, employed early in the disease, many dropsies may be cured.

1695.] Besides exercise, various tonic remedies are properly employed to restore the tone of the system. The chief of these are, chalybeates, the Peruvian bark, and various bitters. These are not only suited to restore the tone of the system in general, but are particularly useful in strengthening the organs of digestion, which in dropsies are fre-

quently very much weakened ; and for the same purpose also aromatics may be frequently joined with the tonics.

1696.] Cold bathing is upon many occasions the most powerful tonic we can employ ; but at the beginning of dropsy, when the debility of the system is considerable, it can hardly be attempted with safety. After, however, the water of dropsies has been very fully evacuated, and the indication is to strengthen the system for preventing a relapse, cold bathing may perhaps have a place. It is, at the same time, to be admitted with caution ; and can scarcely be employed till the system has otherwise recovered a good deal of vigor. When that indeed has happened, cold bathing may be very useful in confirming and completing it.

1697.] In persons recovering from dropsy, while the several means now mentioned for strengthening the system are employed, it will be proper at the same time to keep constantly in view the support of the watery excretions ; and consequently the keeping up the perspiration by a great deal of exercise, and continuing the full flow of the urinary excretions by the frequent use of diuretics.

SECTION II.

Of the Hydrothorax or Dropsy of the Breast.

1698.] THE preternatural collection of serous fluid in the thorax, to which we give the appellation of *Hydrothorax*, occurs more frequently than has been imagined. Its presence, however, is not always to be very certainly known ; and it often takes place to a considerable degree before it be discovered.

1699.] These collections of watery fluids in the thorax, are found in different situations. Very often the water is found at the same time in both sacs of the pleura, but frequently in one of them only. Sometimes it is found in the pericardium alone ; but for the most part it only appears there when at the same time a collection is present in one or both cavities of the thorax. In some instances, the collection is found to be only in that cellular texture of the lungs, which surrounds the bronchiæ, without there being at the same time any effusion into the cavity of the thorax.

Pretty frequently the water collected consists chiefly of

a great number of hydatides in different situations : sometimes seemingly floating in the cavity, but frequently connected with and attached to particular parts of the internal surface of the pleura.

1700.] From the collection of water being thus in various situations and circumstances, symptoms arise which are different in different cases ; and from thence it becomes often difficult to ascertain the presence and nature of the affection. I shall, however, endeavor here to point out the most common symptoms, and especially those of that principal and most frequent form of the disease, when the serous fluid is present in both sacs of the pleura, or, as we usually speak, in both cavities of the thorax.

1701.] The disease frequently comes on with a sense of anxiety about the lower part of the sternum. This, before it has subsisted long, comes to be joined with some difficulty of breathing ; which at first appears only upon the person's moving a little faster than usual, upon his walking up an acclivity, or upon his ascending a staircase : but after some time, this difficulty of breathing becomes more constant and considerable, especially during the night, when the body is in a horizontal situation. Commonly, at the same time, lying upon one side is more easy than upon the other, or perhaps lying upon the back more easy than upon either side. These circumstances are usually attended with a frequent cough, that is at first dry ; but which, after some time, is accompanied with an expectoration of thin mucus.

With all these symptoms, the hydrothorax is not certainly discovered, as the same symptoms often attend other diseases of the breast. When however, along with these symptoms there is at the same time an œdematous swelling of the feet and legs, a leucophlegmatic paleness of the face, and a scarcity of urine, the existence of a hydrothorax can be no longer doubtful. Some writers have told us, that sometimes in this disease, before the swelling of the feet comes on, a watery swelling of the scrotum appears ; but I have never met with any instance of this.

1702.] Whilst the presence of the disease is somewhat uncertain, there is a symptom which sometimes takes place, and has been thought to be a certain characteristic of it ; and that is, when soon after the patient has fallen asleep, he is suddenly awaked with a sense of anxiety and difficult breathing, and with a violent palpitation of the heart. These

feelings immediately require an erect posture ; and very often the difficulty of breathing continues to require and to prevent sleep for a great part of the night. This symptom I have frequently found attending the disease : but I have also met with several instances in which this symptom did not appear. I must remark further, that I have not found this symptom attending the empyema, or any other disease of the thorax ; and therefore, when it attends a difficulty of breathing, accompanied with any the smallest symptom of dropsy, I have had no doubt in concluding the presence of water in the chest, and have always had my judgment confirmed by the symptoms which afterwards appeared.

1703.] The hydrothorax often occurs with very few, or almost none, of the symptoms above mentioned ; and is not, therefore, very certainly discovered till some others appear. The most decisive symptom is a fluctuation of water in the chest, perceived by the patient himself, or by the physician, upon certain motions of the body. How far the method proposed by Auenbrugger will apply to ascertain the presence of water and the quantity of it in the chest, I have not had occasion or opportunity to observe.

It has been said, that in this disease some tumor appears upon the sides or upon the back, but I have not met with any instance of this. In one instance of the disease, I found one side of the thorax considerably enlarged, the ribs standing out farther on that side than upon the other.

A numbness and a degree of palsy in one or both arms, has been frequently observed to attend a hydrothorax.

Soon after this disease has made some progress, the pulse commonly becomes irregular, and frequently intermitting : but this happens in so many other diseases of the breast, that, unless when it is attended with some other of the above-mentioned symptoms, it cannot be considered as denoting the hydrothorax.

1704.] This disease, as other dropsies, is commonly attended with thirst and a scarcity of urine, to be explained in the same manner as in the case of anasarca. (1674.) The hydrothorax, however, is sometimes without thirst, or any other febrile symptom ; although I believe this happens in the case of partial affections only, or when a more general affection is yet but in a slight degree. In both cases, however, and more especially when the disease is considerably advanced, some degree of fever is generally present : and I apprehend it to be in such case, that the persons affected are

more than usually sensible to cold, and complain of the coldness of the air when that is not perceived by other persons.

1705.] The hydrothorax sometimes appears alone, without any other species of dropsy being present at the same time: and in this case the disease, for the most part, is a partial affection, as being either of one side of the thorax only, or being a collection of hydatides in one part of the chest. The hydrothorax, however, is very often a part of more universal dropsy, and when at the same time there is water in all the three principal cavities and in the cellular texture of a great part of the body. I have met with several instances in which such universal dropsy began first by an effusion into the thorax. The hydrothorax, however, more frequently comes on from an anasarca gradually increasing; and, as I have said above, the general diathesis seems often to affect the thorax sooner than it does either the head or the abdomen.

1706.] This disease seldom admits of a cure, or even of alleviation, from remedies. It commonly proceeds to give more and more difficulty of breathing, till the action of the lungs be entirely interrupted by the quantity of water effused; and the fatal event frequently happens more suddenly than was expected. In many of the instances of a fatal hydrothorax, I have remarked a spitting of blood to come on several days before the patient died.

1707.] The cause of hydrothorax is often manifestly one or other of the general causes of dropsy pointed out above: but what it is that determines these general causes to act more especially in the thorax, and particularly what it is that produces the partial collections that occur there, I do not find to be easily ascertained.

1708.] From what has been said above, it will be evident, that the cure of hydrothorax must be very much the same with that of anasarca; and when the former is joined with the latter as an effect of the same general diathesis, there can be no doubt of the method of cure being the same in both. Even when the hydrothorax is alone, and the disease partial, from particular causes acting in the thorax only, there can hardly be any other measures employed, than the general ones proposed above. There is only one particular measure adapted to the hydrothorax; and that is, the drawing off the accumulated waters by a paracentesis of the thorax.

1709.] To what cases this operation may be most pro-

perly adapted, I find it difficult to determine. That it may be executed with safety, there is no doubt ; and that it has been sometimes practised with success, seems to be very well vouched.* When the disease depends upon a general hydropic diathesis, it cannot alone prove a cure, but may give a temporary relief ; and when other remedies seem to be employed with advantage, the drawing off the water may very much favor a complete cure. I have not, however, been so fortunate as to see it practised with any success ; and even where it was most promising, that is, in cases of partial affection, my expectations have been disappointed from it.

SECTION III.

Of Ascites, or Dropsy of the Lower Belly.

1710.] THE name of *Ascites* is given to every collection of waters causing a general swelling and distention of the lower belly ; and such collections are more frequent than those which happen in the thorax.

1711.] The collections in the lower belly, like those of the thorax, are found in different situations. Most commonly they are in the sac of the peritonæum, or general cavity of the abdomen : but they often begin by sacs formed upon, and connected with one or other of the viscera ; and perhaps the most frequent instances of this kind occur in the ovaria of females. Sometimes the water of ascites is found entirely without the peritonæum, and between this and the abdominal muscles.

1712.] These collections connected with particular viscera, and those formed without the peritonæum, form that disease which authors have termed the *encysted dropsy*, or *hydrops saccatus*. Their precise seat, and even their exist-

* In the memoirs of the Academy of Sciences at Paris, for 1703, M. Du Verney relates the case of a woman who had both an *Ascites* and *Hydrothorax*. He first emptied the abdomen by tapping, and a few days afterwards he pierced the thorax with a trochar, near to the spine, between the second and third false ribs ; by which opening he drew off a considerable quantity of water : the operation gave immediate relief to the patient, and she was able to return to her ordinary employments in about a month's time.—Bianchi also relates a successful operation of tapping the thorax ; but he seems to be timid in his practice, and confesses that he has seldom ventured on the operation. The practice of evacuating water contained in the thorax by an incision is very old. We find it recommended by Hippocrates, with particular directions for performing the operation, in his second book on diseases. See the Geneva edition of *Foësius' Hippocrates*, pag. 483.—That the practice was frequently attended with success, in those early ages, is sufficiently evident by the context ; for Hippocrates, after describing the operation, and the subsequent management of the patient, says, "If pus appear on the plaster covering the wound on the fifth day after the operation, the patient generally recovers ; if not, he is seized with a cough and thirst, and dies."

ence, is very often difficult to be ascertained. They are generally formed by collections of hydatides.

1713.] In the most ordinary case, that of abdominal dropsy, the swelling at first is in some measure over the whole belly, but generally appears most considerable in the epigastrium. As the disease, however, advances, the swelling becomes more uniform over the whole. The distention, and sense of weight, though considerable, vary a little according as the posture of the body is changed; the weight being felt the most upon the side on which the patient lies, while at the same time on the opposite side the distention becomes somewhat less. In almost all the instances of ascites, the fluctuation of the water within, may be perceived by the practitioner's feeling, and sometimes by his hearing. This perception of fluctuation does not certainly distinguish the different states of dropsy; but serves very well to distinguish dropsy from tympanites, from cases of physeonia, and from the state of pregnancy in women.

1714.] An ascites frequently occurs when no other species of dropsy does at the same time appear; but sometimes the ascites is a part only of universal dropsy. In this case, it usually comes on in consequence of an anasarca, gradually increasing; but its being joined with anasarca, does not always denote any general diathesis, as for the most part an ascites sooner or later occasions œdematous swellings of the lower extremities. When the collection of water in the abdomen, from whatever cause, becomes considerable, it is always attended with a difficulty of breathing; but this symptom occurs often when, at the same time, there is no water in the thorax. The ascites is sometimes unaccompanied with any fever; but frequently there is more or less of fever present with it. The disease is never considerable, without being attended with thirst and a scarcity of urine.

1715.] In the diagnosis of ascites, the greatest difficulty that occurs, is in discerning when the water is in the cavity of the abdomen, or when it is in the different states of encysted dropsy above-mentioned. There is, perhaps, no certain means of ascertaining this in all cases; but in many we may attempt to form some judgment with regard to it.

When the antecedent circumstances give suspicion of a general hydropic diathesis; when at the same time some degree of dropsy appears in other parts of the body; and when, from its first appearance, the swelling has been equally over the whole belly, we may generally presume that the

water is in the cavity of the abdomen. But when an ascites has not been preceded by any remarkably cachectic state of the system, and when at its beginning the tumor and tension had appeared in one part of the belly more than another, there is reason to suspect an encysted dropsy. Even when the tension and tumor of the belly have become general and uniform over the whole ; yet if the system of the body in general appear to be little affected ; if the patient's strength be little impaired ; if the appetite continue pretty entire, and the natural sleep be little interrupted ; if the menses in females continue to flow as usual ; if there be yet no anasarca ; or, though it may have already taken place, if it be still confined to the lower extremities, and there be no leucophlegmatic paleness or sallow color in the countenance ; if there be no fever, nor so much thirst, or scarcity of urine, as occur in a more general affection ; then, according as more of these different circumstances take place, there will be the stronger ground for supposing the ascites to be of the encysted kind.

The chief exception to be made from this as a general rule, will, in my opinion, be when the ascites may with much probability, be presumed to have come on in consequence of a scirrhus liver ; which, I apprehend, may occasion a collection of water in the cavity of the abdomen, while the general system of the body may not be otherwise much affected.

1716.] With respect to the cure of ascites when of the encysted kind, it does not, so far as I know, admit of any. When the collection of water is in the abdominal cavity alone, without any other species of dropsy present at the same time, I apprehend the ascites will always be of difficult cure ; for it may be presumed to depend upon a scirrhus of the liver, or other considerable affection of the abdominal viscera, which I conceive to be of very difficult cure, and therefore the ascites depending upon them. At the same time, such cases may often admit of a temporary relief by the paracentesis.

1717.] When the ascites is a part of universal dropsy, it may, as far as other cases of that kind can, admit of cure ; and it will be obvious, that such a cure must be obtained by the same means as above proposed for the cure of general anasarca.*

It frequently happens, that the ascites is attended with

* See the notes on article 1684.

a diarrhœa; and, in that case, does not admit of the use of purgatives so freely as cases of anasarca commonly do. It is therefore often to be treated by diuretics almost alone.

The diuretics that may be employed, are chiefly those above-mentioned; but in ascites, a peculiar one has been found out. It is a long continued gentle friction of the skin over the whole of the abdomen, by the fingers dipped in oil. This has sometimes been useful in exciting an increased flow of urine; but in most of the trials of it which I have known made, it has failed in producing that effect.

1718.] The ascites admits of a particular means for immediately drawing off the collected waters: and that is the well-known operation of the paracentesis of the abdomen. In what circumstances of ascites this operation can most properly be proposed, it is difficult to determine; but, so far as I can judge, it must be regulated by very much the same considerations as those above-mentioned with regard to the paracentesis of the thorax.

The manner of performing the paracentesis of the abdomen, and the precautions to be taken with respect to it, are now so commonly known, and delivered in so many books, that it is altogether unnecessary for me to offer any directions upon that subject here; especially after the full and judicious information and directions given by Mr. BELL, in the second volume of his *System of Surgery*.

CHAPTER IV.

OF GENERAL SWELLINGS, ARISING FROM AN INCREASED BULK OF THE WHOLE SUBSTANCE OF PARTICULAR PARTS.

1719.] UPON the subjects of this chapter, several nosological difficulties occur, and particularly with respect to admitting the *Physconia* into the order of General Swellings. At present, however, it is not necessary for me to discuss this point, as I am here to omit entirely the consideration of *Physeonia*; both because it can seldom admit of any successful practice, and because I cannot deliver any thing useful either with regard to the pathology or practice in such a disease.

1720.] The only other genus of disease comprehended under the title of the present chapter, is the *Rachitis*; and

this being both a proper example of the class of *Cachexy*, and of the order of *Intumescentie* or General Swellings, I shall offer some observations with regard to it.

OF RACHITIS, OR RICKETS.

1721.] THIS disease has been supposed to have appeared only in modern times, and not above two hundred years ago. This opinion, notwithstanding it has been maintained by persons of the most respectable authority,* appears to me, from many considerations, improbable; but it is a point of too little consequence to detain my readers here. The only application of it which deserves any notice is, that it has led to a notion of the disease having arisen from the lues venerea, which had certainly made its first appearance in Europe not very long before the date commonly assigned for the appearance of rachitis: but I shall hereafter show, that the supposed connection between the Siphylis and Rachitis is without foundation.†

1722.] In delivering the history of the *Rickets*, I must, in the first place, observe that with respect to the antecedents of the disease, every thing to be found in authors upon this subject, appears to me to rest upon a very uncertain foundation. In particular, with respect to the state of the parents whose offspring become affected with this disease, I have met with many instances of it, in children from seemingly healthy parents, and have met likewise with many instances of children who never became affected with it, although born of parents who, according to the common accounts, should have produced a rickety offspring: so that even making allowance for the uncertainty of fathers, I do not find the general opinion of authors upon this subject to be properly supported.

1723.] The disease, however, may be justly considered as proceeding from parents; for it often appears in a great number of the same family: and my observation leads me to judge, that it originates more frequently from mothers than from fathers. So far as I can refer the disease of the children to the state of the parents, it has appeared to me most commonly to arise from some weakness, and pretty frequently from a scrophulous habit in the mother. To con-

* Boerhaave was of this opinion. See Van Swieten's Commentary on Aphorism 1482.

† See article 1728.

clude the subject, I must remark, that in many cases I have not been able to discern the condition of the parents, to which I could refer it.

When nurses, other than the mothers, have been employed to suckle children, it has been supposed that such nurses have frequently given occasion to the disease* and when nurses have both produced and have suckled children who became rickety, there may be ground to suspect their having occasioned the disease in the children of other persons : but I have had few opportunities of ascertaining this matter. It has in some measure appeared to me, that those nurses are most likely to produce this disease, who give infants a large quantity of very watery milk, and who continue to suckle them longer than the usual time. Upon the whole, however, I am of opinion, that hired nurses seldom occasion this disease, unless when a predisposition to it has proceeded from the parents.

1724.] With regard to the other antecedents, which have been usually enumerated by authors as the remote causes of this disease, I judge the accounts given to be extremely fallacious ; and I am very much persuaded, that the circumstances in the rearing of children, have less effect in producing rickets than has been imagined. It is indeed not unlikely, that some of these circumstances mentioned as remote causes may favor, while other circumstances may resist, the coming on of the disease ; but at the same time, I doubt if any of the former would produce it where there was no predisposition in the child's original constitution. This opinion of the remote causes, I have formed from observing, that the disease comes on when none of these had been applied ; and more frequently that many of them had been applied without occasioning the disease. Thus the learned ZEVIANI alleges, that the disease is produced by an acid from the milk with which a child is fed for the first nine months of its life : but almost all children are fed with the same food, and in which also an acid is always produced ; while at the same time, not one in a thousand of the infants so fed becomes affected with the rickets. If, therefore, in the infants who become affected with this disease, a peculiarly noxious acid is produced, we must seek for some peculiar cause of its production, either in the quality of the milk, or in the constitution of the child ; neither of which

* This opinion was held by Boerhaave, and notwithstanding what the author says at the end of this paragraph, the opinion is certainly founded on experience.

however, Mr. Zeviani has explained. I cannot indeed believe that the ordinary acid of milk has any share in producing this disease, because I have known many instances of the acid being produced and occasioning various disorders, without, however, its ever producing rickets.

Another of the remote causes commonly assigned is the child's being fed with unfermented farinaceous food. But over the whole world, children are fed with such farinacea, while the disease of rickets is a rare occurrence: and I have known many instances where children have been fed with a greater than usual proportion of fermented farinacea, and also a greater proportion of animal food, without these preventing the disease. In my apprehension, the like observations might be made with respect to most of the circumstances that have been mentioned as the remote causes of rickets.

1725.] Having thus offered my opinion concerning the supposed antecedents of this disease, I proceed now to mention the phenomena occurring after it has actually come on.*

The disease seldom appears before the ninth month, and seldom begins after the second year, of a child's age. In the interval between these periods, the appearance of the disease is sometimes sooner, sometimes later; and commonly at first the disease comes on slowly. The first appearances are, a flaccidity of the flesh, the body at the same time becoming leaner, though food be taken in pretty largely. The head appears large with respect to the body; with the fontanelle, and perhaps the sutures, more open than usual in children of the same age. The head continues to grow larger; in particular, the forehead becoming unusually prominent; and at the same time the neck continues slender, or seems to be more so, in proportion to the head. The dentition is slow, or much later than usual; and those teeth which come out, readily become black, and frequently again fall out. The ribs lose their convexity, and become flattened on the side; while the sternum is pushed outward, and forms a sort of ridge. At the same time, or perhaps sooner, the epiphyses at the several joints of the limbs become swelled; while the limbs between the joints appear, or perhaps actually become, more slender. The bones seem to be every where flexible, becoming variously distorted; and particularly the spine of the back be-

* This admirable description of the disease merits the peculiar attention of the young practitioner.

coming incurvated in different parts of its length. If the child, at the same time the disease comes on, had acquired the power of walking, it becomes daily more feeble in its motions, and more averse to the exertion of them, losing at length the power of walking altogether. Whilst these symptoms go on increasing, the abdomen is always full, and preternaturally tumid. The appetite is often good, but the stools are generally frequent and loose. Sometimes the faculties of the mind are impaired, and stupidity or fatuity prevails; but commonly a premature sensibility appears, and they acquire the faculty of speech sooner than usual. At the first coming on of the disease, there is generally no fever attending it: but it seldom continues long, till a frequent pulse, and other febrile symptoms, come to be constantly present. With these symptoms the disease proceeds, and continues in some instances for some years; but very often, in the course of that time, the disease ceases to advance, and the health is entirely established, except that the distorted limbs, produced during the disease, continue for the rest of life. In other cases, however, the disease proceeds increasing, till it has affected almost every function of the animal œconomy, and at length terminates in death. The variety of symptoms which in such cases appear, it does not seem necessary to enumerate, as they are not essential to the constitution of the disease, but are merely consequences of the more violent conditions of it. In the bodies of those who have died, various morbid affections have been discovered in the internal parts. Most of the viscera of the abdomen have been found to be preternaturally enlarged. The lungs have also been found in a morbid state, seemingly from some inflammation that had come on towards the end of the disease. The brain has been commonly found in a flaccid state, with effusions of a serous fluid into its cavities. Very universally the bones have been found very soft, and so much softened as to be readily cut by a knife. The fluids have been always found in a dissolved state, and the muscular parts very soft and tender; and the whole of the dead body without any degree of that rigidity which is so common in almost all others.

1726.] From these circumstances of the disease, it seems to consist in a deficiency of that matter which should form the solid parts of the body. This especially appears in the faulty state of ossification, seemingly depending upon the deficiency of that matter which should be deposited in the

membranes which are destined to become bony, and should give them their due firmness and bony hardness. It appears that this matter is not supplied in due quantity ; but that in place of it, a matter fitted to increase their bulk, particularly in the epiphyses, is applied too largely. What this deficiency of matter depends upon, is difficult to be ascertained. It may be a fault in the organs of digestion and assimilation, which prevents the fluids in general from being properly prepared : or it may be a fault in the organs of nutrition, which prevents the secretion of a proper matter to be applied. With respect to the latter, in what it may consist, I am entirely ignorant, and cannot even discern that such a condition exists : but the former cause, both in its nature and existence, is more readily perceived ; and it is probable that it has a considerable influence in the matter ; as in rachitic persons a thinner state of the blood, both during life and after death, so commonly appears. It is this state of the fluids, or a deficiency of bony matter in them, that I consider as the proximate cause of the disease ; and which again may in some measure depend upon a general laxity and debility of the moving fibres of the organs that perform the functions of digestion and assimilation.

1727.] There is, however, something still wanting to explain, why these circumstances discover themselves at a particular time of life, and hardly ever either before or after a certain period ; and as to this I would offer the following conjectures. Nature having intended that human life should proceed in a certain manner, and that certain functions should be exercised at a certain period of life only ; so it has generally provided, that at that period, and not sooner, the body should be fitted for the exercise of the functions suited to it. To apply this to our present subject, Nature seems to have intended that children should walk only at twelve months old ; and accordingly has provided that against that age, and no sooner, a matter should be prepared fit to give that firmness to the bones which is necessary to prevent their bending too easily under the weight of the body. Nature, however, is not always steady and exact in executing her own purposes ; and if therefore the preparation of bony matter shall not have been made against the time there is a particular occasion for it, the disease of rickets, that is, of soft and flexible bones, must come on ; and will discover itself about the particular period we have mentioned. Further, it will be equally probable, that if at

the period mentioned, the bones shall have acquired their due firmness, and that nature goes on in preparing and supplying the proper bony matter, it may be presumed, that against the time a child is two years old, such a quantity of bony matter will be applied, as to prevent the bones from becoming again soft and flexible during the rest of life; unless it happen, as indeed it sometimes does, that certain causes occur to wash out again the bony matter from the membranes in which it had been deposited. The account I have now given of the period at which the rickets occur, seems to confirm the opinion of its proximate cause being a deficiency of bony matter in the fluids of the body.

1728.] It has been frequently supposed, that a siphylitic taint has a share in producing rickets; but such a supposition is altogether improbable. If our opinion of the rickets having existed in Europe before the siphylis was brought into it, be well founded, it will then be certain that the disease may be occasioned without any siphylitic acrimony having a share in its production. But further, when a siphylitic acrimony is transmitted from the parent to the offspring, the symptoms do not appear at a particular time of life only, and commonly more early than the period of rickets; the symptoms also are very different from those of rickets, and unaccompanied with any appearance of the latter; and, lastly, the symptoms of siphylis are cured by means which, in the case of rickets, have either no effect, or a bad one. It may indeed possibly happen, that siphylis and rickets may appear in the same person; but it is to be considered as an accidental complication: and the very few instances of it that have occurred, are by no means sufficient to establish any necessary connection between the two diseases.

1729.] With respect to the deficiency of bony matter, which I consider as the proximate cause of rickets, some further conjectures might be offered concerning its remote causes; but none of them appear to me very satisfying; and whatever they might be, it appears to me they must again be resolved into the supposition of a general laxity and debility of the system.

1730.] It is upon this supposition almost alone that the cure of rickets has entirely proceeded. The remedies have been such especially as were suited to improve the tone of the system in general, or of the stomach in particular: and we know that the latter are not only suited to improve the

tone of the stomach itself, but by that means to improve also the tone of the whole system.

1731.] Of tonic remedies, one of the most promising seems to have been cold bathing; and I have found it the most powerful in preventing the disease. For a long time past, it has been the practice in this country, with people of all ranks, to wash their children from the time of their birth with cold water; and from the time that children are a month old, it has been the practice with people of better rank to have them dipped entirely in cold water every morning: and wherever this practice has been pursued, I have not met with any instance of rickets. Amongst our common people, although they wash their children with cold water only, yet they do not so commonly practise immersion: and when amongst these I meet with instances of rickets, I prescribe cold bathing; which accordingly has often checked the progress of the disease, and sometimes seems to have cured it entirely.

1732.] The remedy of *Ens Veneris*, recommended by Mr. Boyle, and since his time very universally employed, is to be considered as entirely a tonic remedy. That or some other preparation of iron I have almost constantly employed, though not indeed always with success. I have been persuaded, that the *ens veneris* of Mr. Boyle, notwithstanding his giving it this appellation, was truly a preparation of iron, and no other than what we now name the *Flores Martiales*:* but it appears, that both Benevoli and Buchner have employed a preparation of copper; and I am ready to believe it to be a more powerful tonic than the preparations of iron.†

1733.] Upon the supposition of tonic remedies being proper in this disease, I have endeavored to employ the Peruvian bark: but from the difficulty of administering it to infants in any useful quantity, I have not been able to discover its efficacy; but I am very ready to believe the testimony of De Haen upon this subject.‡

* The dose of this medicine is from four to twenty grains, it must be given in the form of a bolus. The young practitioner ought to beware of prescribing *Flores martiales* in pills, which will swell and crumble to pieces if they are not composed of a considerable quantity of some gummi resin. The *Flores martiales* may be very conveniently given in a tincture of proof spirit. There is a formula of it in the last London Pharmacopœia, under the name of *Tinctura ferri Ammoniacalis*. The dose of it is a tea-spoonful in a wine glass of cold water, and it is a very elegant form of administering the chalybeates.

† Copper is a very dangerous remedy, as was mentioned above in the notes on article 1337. The author had a very high opinion of copper as a tonic.

‡ It is doubtless difficult to make children swallow a sufficient quantity of bark to produce any good effects, yet it is not impossible. The formula best adapted for children, is the powder of the extract; but as it sometimes occasions constipation, this effect must be guarded against by some proper laxative, especially by Rhubarb given either with the bark or separately. The following formula is a proper dose for a child of two years old, to be repeated twice a day:

1734.] Exercise, which is one of the most powerful tonics, has been properly recommended for the cure of rickets ; and as the exercise of gestation only can be employed, it should always be, with the child laid in a horizontal situation ; as the carrying them, or moving them in any degree of an erect posture, is very apt to occasion some distortion. It is extremely probable, that, in this disease, friction with dry flannels may be found an useful remedy.

1735.] It is also sufficiently probable, that the avoiding of moisture is not only adviseable, but may likewise be of service in the cure of this disease.

There is no doubt that a certain diet may contribute to the same end ; but what may be the most eligible, I dare not determine. I have no doubt that leavened bread may be more proper than unfermented farinacea ; but I cannot find any reason to believe that strong beer can ever be a proper remedy.

Practitioners have been divided in opinion concerning the use of milk in this disease. Zeviani, perhaps from theory, condemns the use of it ; but Benevoli employed it without its impeding the cure of the disease. This last I have often remarked in the course of my own practice. As it is difficult to feed children entirely without milk ; so I have commonly admitted it as a part of the diet of rickety children ; and in many instances I can affirm, that it did not prevent the cure of the disease. In cases, however, of any appearance of rickets, and particularly of a slow dentition, I have dissuaded the continuance of a child upon the breast ; because the milk of women is a more watery nourishment than that of cows : and I have especially dissuaded the continuing a child upon the breast, when I thought the nurse gave rather too much of such a watery nourishment ; for, as has been above-mentioned, I have had frequent occasion to suspect, that the milk of such nurses has a tendency to favor the coming on of the rickets.*

1736.] Besides the remedies and regimen now mentioned, practitioners have commonly employed in this disease, both emetics and purgatives. When the appetite and digestion are considerably impaired, vomiting, if neither vio-

R. Extr. Cort. Peruv. dur. gr. viii.
 Pulv. Rad. Rhej. gr. x.
 Sacch. Alb. gr. xv.
 M. f. Pulv.

* How does this accord with the last sentence of article 1723?

lent, nor frequently repeated, seems to be of service ; and by a moderate agitation of the abdominal viscera, may in some measure obviate the stagnation and consequent swelling that usually occur in them.

As the tumid state of the abdomen, so constantly to be met with in this disease, seems to depend very much upon a tympanitic affection of the intestines ; so, both by obviating this, and by deriving from the abdominal viscera, frequent gentle purgatives may be of service. Zeviani, perhaps properly, recommends in particular rhubarb ; which, besides its purgative quality, has those also of bitter and astringent.

1737.] I have now mentioned most of the remedies commonly employed by the practitioners of former times ; but I must not omit mentioning some others that have been lately suggested. The late Mr. De Haen recommends the testacea ; and assures us of their having been employed with success : but in the few trials which I have had occasion to make, their good effects did not appear.

The late Baron Van Swieten gives us one instance of rickets cured by the use of hemlock : but I do not know that the practice has been repeated.

B O O K III.

OF THE IMPETIGINES ; OR DEPRAVED HABIT, WITH AFFECTIONS OF THE SKIN.

1738.] **I** FIND it difficult to give any sufficiently correct and proper character of this order. The diseases comprehended under it, depend, for the most part, upon a depraved state of the whole of the fluids, producing tumors, eruptions, or other preternatural affections of the skin. Although it be extremely difficult to find a general character of the order that will apply to each of the genera and species, I shall treat of the principal genera which have been commonly comprehended under this order, and which I have enumerated in my Nosology.

CHAPTER I.

OF SCROPHULA, OR THE KING'S EVIL.

1739.] **T**HE character of this disease I have attempted in my Nosology: but it will be more properly taken from the whole of its history, now to be delivered.

1740.] It is commonly, and very generally, a hereditary disease; and although it sometimes may, yet it rarely appears, but in children whose parents had at some period of their lives been affected with it. Whether it may not fail to appear in the children of scrophulous parents, and discover itself afterwards in their offspring in the succeeding generation, I cannot certainly determine; but believe that this has frequently happened. It appears to me to be derived more commonly from fathers than from mothers; but whether this happens from their being more scrophulous men than scrophulous women married, I am not certain.

With respect to the influence of parents in producing this disease, it deserves to be remarked, that in a family of many children, when one of the parents has been affected with scrophula, and the other not; as it is usual for some of the children to be in constitution pretty exactly like the one parent, and others of them like the other; it commonly happens, that those children who most resemble the scrophulous parent become affected with scrophula, while those resembling the other parent entirely escape.

1741.] The scrophula generally appears at a particular period of life. It seldom appears in the first, or even in the second year of a child's life; and most commonly it occurs from the second, or, as some alledge, and perhaps more properly, from the third, to the seventh year. Frequently, however, it discovers itself at a later period; and there are instances of its first appearance, at every period till the age of puberty; after which, however, the first appearance of it is very rare.

1742.] When it does not occur very early, we can generally distinguish the habit of body peculiarly disposed to it. It most commonly affects children of soft and flaccid habits, of fair hair and blue eyes; or at least affects those much more frequently than those of an opposite complexion.

It affects especially children of smooth skins and rosy cheeks; and such children have frequently a tumid upper lip, with a chop in the middle of it; and this tumor is often considerable, and extended to the columna nasi and lower part of the nostrils. The disease is sometimes joined with, or follows rickets; and although it frequently appears in children who have not had rickets in any great degree, yet it often attacks those who, by a protuberant forehead, by tumid joints, and a tumid abdomen, show that they had some rachitic disposition. In parents who without having had the disease themselves, seem to produce scrophulous children, we can commonly perceive much of the same habit and constitution that has been just now described.

Some authors have supposed that the small-pox has a tendency to produce this disease; and Mr. De Haen asserts its following the inoculated, more frequently than the natural, small-pox. This last position, however, we can confidently affirm to be a mistake; although it must be allowed, that in fact the scrophula does often come on immediately after the small-pox. It is, however, difficult to find any connection between the two diseases. According to my observation, the accident only happens in children who have pretty manifestly the scrophulous disposition; and I have had several instances of the natural small-pox coming upon children affected at the same time with scrophula, not only without this disease being any ways aggravated by the small-pox, but even of its being for some time after much relieved.

1743.] The scrophula generally shows itself first at a particular season of the year; and at some time between the winter and summer solstice; but commonly long before the latter period. It is to be observed further, that the course of the disease is usually connected with the course of the seasons. Whilst the tumors and ulcerations peculiar to this disease, appear first in the spring, the ulcers are frequently healed up in the course of the succeeding summer, and do not break out again till the ensuing spring, to follow again with the season the same course as before.

1744.] Frequently the first appearance of the disease is the tumid and chopped lip above-mentioned. Upon other occasions the first appearance is that of small spherical or oval tumors, moveable under the skin. They are soft, but with some elasticity. They are without pain; and without any change in the color of the skin. In this state they

often continue for a long time ; even for a year or two, and sometimes longer. Most commonly they first appear upon the sides of the neck below the ears ; but sometimes also under the chin. In either case, they are supposed to affect in these places the conglobate or lymphatic glands only ; and not at all the salivary glands, till the disease is very greatly advanced. The disease frequently affects, and even at first appears in, other parts of the body. In particular, it affects the joints of the elbows and ankles, or those of the fingers and toes. The appearances about the joints are not commonly, as elsewhere, small moveable swellings ; but a tumor almost uniformly surrounding the joint, and interrupting its motion.

1745.] These tumors, as I have said, remain for some time little changed ; and, from the time they first appeared in the spring, they often continue in this way till the return of the same season in the next, or perhaps the second year after. About that time, however, or perhaps in the course of the season in which they first appear, the tumor becomes larger and more fixed ; the skin upon it acquires a purple, seldom a clear redness : but growing redder by degrees, the tumor becomes softer, and allows the fluctuation of a liquid within to be perceived. All this process, however, takes place with very little pain attending it. At length some part of the skin becomes paler ; and by one or more small apertures a liquid is poured out.

1746.] The matter poured out has at first the appearance of pus, but it is usually of a thinner kind than that from phlegmonic abscesses ; and the matter as it continues to be discharged, becomes daily less purulent, and appears more and more a viscid serum, intermixed with small pieces of a white substance resembling the curd of milk. By degrees the tumor almost entirely subsides, while the ulcer opens more, and spreads broader ; unequally, however, in different directions, and therefore is without any regular circumscription. The edges of the ulcer are commonly flat and smooth, both on their outside and their inner edge, which seldom puts on a callous appearance. The ulcers, however, do not generally spread much, or become deeper ; but at the same time their edges do not advance, or put on any appearance of forming a cicatrix.

1747.] In this condition the ulcers often continue for a long time ; while new tumors, with ulcers succeeding them in the manner above described, make their appearance in

different parts of the body. Of the first ulcers, however, some heal up, while other tumors and ulcers appear in their vicinity, or in other parts of the body : and in this manner the disease proceeds, some of the ulcers healing up, at least to a certain degree, in the course of summer, and breaking out in the succeeding spring : or it continues, by new tumors and ulcers succeeding them, in the spring season, making their appearance successively for several years.

1748.] In this way the disease goes on for several years ; but very commonly in four or five years it is spontaneously cured, the former ulcers being healed up, and no new tumors appearing : and thus at length the disease ceases entirely, leaving only some indelible eschars, pale and smooth, but in some parts shrivelled ; or, where it had occupied the joints, leaving the motion of these impaired, or entirely destroyed.

1749.] Such is the most favorable course of this disease ; and with us, it is more frequently such, than otherwise : but it is often a more violent, and sometimes a fatal malady. In these cases, more parts of the body are at the same time affected ; the ulcers also seeming to be imbued with a peculiarly sharp acrimony, and therefore becoming more deep, eroding, spreading, as well as seldomer healing up. In such cases, the eyes are often particularly affected. The edges of the eyelids are affected with tumor and superficial ulcerations ; and these commonly excite obstinate inflammation in the adnata, which frequently produces an opacity of the cornea.

When the scrophula especially affects the joints, it sometimes produces there considerable tumors ; in the abscesses following which, the ligaments and cartilages are eroded, and the adjoining bones are affected with a caries of a peculiar kind. In these cases, also, of more violent scrophula, while every year produces a number of new tumors and ulcers, their acrimony seems at length to taint the whole fluids of the body, occasioning various disorders ; and particularly a hectic fever, with all its symptoms, which at length proves fatal, with sometimes the symptoms of a phthisis pulmonalis.

1750.] The bodies of persons who have died of this disease show many of the viscera in a very morbid state ; and particularly most of the glands of the mesentery very much tumefied, and frequently in an ulcerated state. Commonly

also a great number of tubercles or cysts, containing matter of various kinds, appear in the lungs.

1751.] Such is the history of the disease ; and from thence it may appear, that the nature of it is not easily to be ascertained. It seems to be a peculiar affection of the lymphatic system ; and this in some measure accounts for its connection with a particular period of life. Probably, however, there is a peculiar acrimony of the fluids that is the proximate cause of the disease ; although of what nature this is, has not yet been discovered. It may perhaps be generally diffused in the system, and exhaled into the several cavities and cellular texture of the body ; and therefore, being taken up by the absorbents, may discover itself especially in the lymphatic system. This, however, will hardly account for its being more confined to that system, than happens in the case of many other acrimonies which may be supposed to be as generally diffused. In short, its appearance in particular constitutions, and at a particular period of life, and even its being a hereditary disease, which so frequently depends upon the transnission of a peculiar constitution, are all of them circumstances which lead me to conclude, upon the whole, that this disease depends upon a *peculiar constitution of the lymphatic system.*

1752.] It seems proper to observe here, that the scrophula does not appear to be a contagious disease ; at least I have known many instances of sound children having had frequent and close intercourse with scrophulous children without being infected with the disease. This certainly shows, that in this disease the peculiar acrimony of it is not exhaled from the surface of the body, but that it depends especially upon a peculiar constitution of the system.

1753.] Several authors have supposed the scrophula to have been derived from the venereal disease ; but upon no just grounds that I can perceive. In very many instances, there can hardly be any suspicion of the parents producing this disease having been imbued with siphylis, or with any siphylitic taint ; and I have known several examples of parents conveying siphylis to their offspring, in whom, however, no scrophulous symptoms at any time afterwards appeared. Further, the symptoms of the two diseases are very different ; and the difference of their natures appears particularly from hence, that while mercury commonly and readily cures the siphylis, it does no service in scrophula, and very often rather aggravates the disease.

1754.] For the cure of scrophula, we have not yet learned any practice that is certainly or even generally successful.

The remedy which seems to be the most successful, and which our practitioners especially trust to and employ, is the use of mineral waters ; and indeed the washing out, by means of these, the lymphatic system, would seem to be a measure promising success : but in very many instances of the use of these waters, I have not been well satisfied that they had shortened the duration of the disease more than had often happened when no such remedy had been employed.

1755.] With regard to the choice of the mineral waters most fit for the purpose, I cannot with any confidence give an opinion. Almost all kinds of mineral waters, whether chalybeate, sulphureous or saline, have been employed for the cure of scrophula, and seemingly with equal success and reputation : a circumstance which leads me to think, that, if they are ever successful, it is the elementary water that is the chief part of the remedy.

Of late, sea water has been especially recommended and employed ; but after numerous trials, I cannot yet discover its superior efficacy.

1756.] The other remedies proposed by practical writers are very numerous ; but, upon that very account, I apprehend they are little to be trusted : and as I cannot perceive any just reason for expecting success from them, I have very seldom employed them.

Of late, the Peruvian bark has been much recommended : And as in scrophulous persons there are generally some marks of laxity and flaccidity, this tonic may possibly be of service ; but in a great variety of trials, I have never seen it produce any immediate cure of the disease.

In several instances, the leaves of coltsfoot have appeared to me to be successful. I have used it frequently in strong decoction, and even then with advantage ; but have found more benefit from the expressed juice, when the plant could be had in somewhat of a succulent state, soon after its first appearance in the spring.

1757.] I have also frequently employed the hemlock, and have sometimes found it useful in discussing obstinate swellings : but in this, it has also often disappointed me ; and I have not at any time observed that it disposed scrophulous ulcers to heal.

I cannot conclude the subject of internal medicines with-

out remarking, that I have never found, either mercury or antimony, in any shape, of use in this disease; and when any degree of a feverish state had come on, the use of mercury proved manifestly hurtful.

1758.] In the progress of scrophula, several external medicines are requisite. Several applications have been used for discussing the tumors upon their first coming on; but hitherto my own practice, in these respects, has been attended with very little success. The solution of saccharum saturni has seemed to be useful; but it has more frequently failed: and I have had no better success with the spiritus Mindereri. Fomentations of every kind have been frequently found to do harm; and poultices seem only to hurry on a suppuration. I am doubtful if this last be ever practised with advantage; for scrophulous tumors sometimes spontaneously disappear, but never after any degree of inflammation has come upon them; and therefore poultices, which commonly induce inflammation, prevent that discussion of tumors, which might otherwise have happened.

Even when scrophulous tumors have advanced towards suppuration, I am unwilling to hasten the spontaneous opening, or to make it by the lancet; because I apprehend the scrophulous matter is liable to be rendered more acrid by communication with the air, and to become more eroding and spreading than when in its inclosed state.

1759.] The management of scrophulous ulcers has, so far as I know, been as little successful as that of the tumors. Escharotic preparations, of either mercury or copper, have been sometimes useful in bringing on a proper suppuration, and thereby disposing the ulcer to heal; but they have seldom succeeded, and more commonly they have caused the ulcer to spread more. The escharotic from which I have received most benefit is burnt alum, and a portion of that mixed with a mild ointment, has been as useful an application as any I have tried. The application, however, that I have found most serviceable and very universally admissible, is that of linen cloths wetted with cold water, and frequently changed when they are becoming dry, it being inconvenient to let them be glued to the sore. They are therefore to be changed frequently during the day; and a cloth spread with a mild ointment or plaster may be applied for the night. In this practice I have sometimes employed sea-water; but generally it proved

too irritating ; and neither that nor any mineral water has appeared to be of more service than common water.

1760.] To conclude what I have to offer upon the cure of scrophula, I must observe, that cold bathing seems to have been of more benefit than any other remedy that I have had occasion to see employed.

CHAPTER II.

OF SYPHYLIS, OR THE VENEREAL DISEASE.

1761.] **A**FTER practitioners have had so much experience in treating this disease, and after so many books have been published upon the subject, it does not seem necessary, or even proper, for me to attempt any full treatise concerning it ; and I shall therefore confine myself to such general remarks, as may serve to illustrate some parts of the pathology or of the practice.

1762.] It is sufficiently probable, that anciently, in certain parts of Asia, where the leprosy prevailed, and in Europe after that disease had been introduced into it, a disease of the genitals, resembling that which now commonly arises from siphylis, had frequently appeared : but it is equally probable, that a new disease, and what we at present term *Siphylis*, was first brought into Europe about the end of the fifteenth century ; and that the distemper now so frequently occurring, has been very entirely derived from that which was imported from America at the period mentioned.*

1763.] This disease, at least in its principal circumstances, never arises in any person but from some communication with a person already affected with it. It is most commonly contracted in consequence of coition with an infected person ; but in what manner the infection is communicated, is not clearly explained. I am persuaded, that in coition, it is communicated without there being any open ulcer either in the person communicating or in the person receiving the infection ; but in all other cases, I believe it is

* Various opinions have been held by different physicians about the origin of this disease ; some supposing it to have existed in the old world, while others think it was imported from the new world, discovered by Columbus. The dispute produced many controversial tracts, from the perusal of which, the young practitioner can gain little advantageous knowledge. All that we certainly know about the origin of the disease is, that it was first observed among the French, when they were at Naples in the year 1493, and that it was brought into France by the French who returned thither with Charles. Columbus landed at Palos on the 15th of March in the same year, on his return from his first voyage. The disease therefore, if imported by Columbus' crew, must have spread rapidly through Europe.

never communicated in any other way than by a contact of ulcer, either in the person communicating, or in the person receiving the infection.

1764.] As it thus arises from the contact of particular parts, so it always appears first in the neighborhood of the parts to which the infecting matter had been immediately applied; and therefore, as most commonly contracted by coition, it generally appears first in the genitals.

1765.] After its first appearance in particular parts, more especially when these are the genitals of either sex, its effects for some time seem to be confined to these parts; and indeed, in many cases, never extends further. In other cases however, the infecting matter passes from the parts first affected, and from the genitals; therefore, into the blood-vessels; and being there diffused, produces disorders in many other parts of the body.

From this view of the circumstances, physicians have very properly distinguished the different states of the disease, according as they are local or are more universal. To the former they have adapted appellations suited to the manner in which the disease appears: and to the other the general affection, they have almost totally confined the appellations of *Siphylis*, *Lues Venerea*, or *Pox*. In the remarks I am now to offer, I shall begin with considering the local affection.

1766.] This local affection appears chiefly in the form of gonorrhœa or chancre.

The phenomena of gonorrhœa, either upon its first coming on or in its after progress, or the symptoms of ardor urinæ, chordee, or others attending it, it is not necessary for me to describe. I shall only here observe, that the chief circumstance to be taken notice of, is the inflamed state of the urethra, which I take to be inseparable from the disease.

1767.] In these well known circumstances, the gonorrhœa continues for a time longer or shorter, according to the constitution of the patient; it usually remaining longest in the most vigorous and robust, or according to the patient's regimen, and the care taken to relieve or cure the disease. In many cases, if by a proper regimen the irritation of the inflamed state is carefully avoided, the gonorrhœa spontaneously ceases, the symptoms of inflammation gradually abating, the matter discharged becoming of a thicker and more viscid consistence, as well as of a whiter color; till at length, the flow of it ceases altogether; and

whether it be thus cured spontaneously, or by art, the disease often exists without communicating any infection to the other parts of the body.

1768.] In other cases, however, the disease having been neglected, or by an improper regimen aggravated, it continues with all its symptoms for a long time ; and produces various other disorders, in the genital parts, which, as commonly taken notice of by authors, need not be described here. I shall only observe, that the inflammation of the urethra, which at first seems to be seated chiefly, or only, in its anterior parts, is in such neglected and aggravated cases spread upwards along the urethra, even to the neck of the bladder. In these circumstances, a more considerable inflammation is occasioned in certain parts of the urethra ; and consequently, suppuration and ulcer are produced by which the venereal poison is sometimes communicated to the system, and gives rise to a general siphylis.

1769.] It was some time ago a pretty general supposition, that the gonorrhœa depended always upon ulcers of the urethra, producing a discharge of purulent matter ; and such ulcers do indeed sometimes occur in the manner that has been just now mentioned. We are now assured, however, from many dissections of persons who had died when laboring under a gonorrhœa, that the disease may exist, and from many considerations it is probable that it commonly does exist, without any ulceration of the urethra ; so that the discharge which appears, is entirely that of a vitiated mucus from the mucous follicles of the urethra.

1770.] Although most of the symptoms of gonorrhœa should be removed, yet it often happens that a mucous fluid continues to be discharged from the urethra for a long time after, and sometimes for a great part of a person's life. This discharge is what is commonly called a *Gleet*.

With respect to this, it is proper to observe, that in some cases, when it is certain the matter discharged contains no venereal poison, the matter may, and often does put on that puriform appearance, and that yellow and greenish color, which appears in the discharge at the beginning and during the course of a virulent gonorrhœa. These appearances in the matter of a gleet which before had been of a less colored kind, have frequently given occasion to suppose that a fresh infection had been received : but I am certain that such appearances may be brought on by, perhaps, various other causes ; and particularly, by intemperance in venery

and drinking concurring together. I believe, indeed, that this seldom happens to any but those who had before frequently labored under a virulent gonorrhœa, and have more or less of gleet remaining with them : but I must also observe, that in persons who at no period of their life had ever labored under a virulent gonorrhœa, or any other symptom of siphylitic affection, I have met with instances of discharges from the urethra resembling those of a virulent gonorrhœa.

The purpose of these observations is, to suggest to practitioners what I have not found them always aware of, that in persons laboring under a gleet, such a return of the appearances of a virulent gonorrhœa may happen without any new infection having been received, and consequently not requiring the treatment which a new infection might perhaps demand. When, in the cure of gonorrhœa, it was the practice to employ purgatives very frequently, and sometimes those of the drastic kind, I have known the gleet, or spurious gonorrhœa, by such a practice much increased and long continued, and the patient's constitution very much hurt. Nay in order more certainly further to prevent mistakes, it is to be observed, that the spurious gonorrhœa is sometimes attended with heat of urine, and some degree of inflammation ; but these symptoms are seldom considerable, and merely by the assistance of a cool regimen, commonly disappear in a few days.

1771.] With respect to the cure of a virulent gonorrhœa, I have only to remark, that if it be true, as I have mentioned above, that the disease will often, under a proper regimen, be spontaneously cured ; and that the whole of the virulent matter may be thus entirely discharged without the assistance of art ; it would seem that there is nothing required of practitioners, but to moderate and remove that inflammation which continues the disease, and occasions all the troublesome symptoms that ever attend it. The sole business therefore of our art in the cure of gonorrhœa, is to take off the inflammation accompanying it : and this I think may commonly be done, by avoiding exercise, by using a low and cool diet, by abstaining entirely from fermented and spirituous liquors, and by taking plentifully of mild diluent drinks.*

* This simple method of curing a gonorrhœa is, in many cases, sufficient ; but it can only be depended on when the disease is slight and the patient of a healthy constitution. As every virulent gonorrhœa is evidently produced by the action of the venereal poison, the judicious practitioner will seldom trust to this method without the use of mercurials after the inflammatory symptoms have been somewhat subdued. They ought to be given in such cases in very small

1772.] The heat of urine, which is so troublesome in this disease, as it arises from the increased sensibility of the urethra in its inflamed state; so, on the other hand, the irritation of the urine has the effect of increasing the inflammation, and is therefore to be removed as soon as possible. This can be done most effectually by taking in a large quantity of mild watery liquors. Demulcents may be employed; but unless they be accompanied with a large quantity of water, they will have little effect.* Nitre has been commonly employed as a supposed refrigerant: but, from much observation, I am convinced, that in a small quantity it is useless, and in a large quantity certainly hurtful;† and, for this reason, that every saline matter passing with the urine generally gives some irritation to the urethra. To prevent the irritation of the urethra arising from its increased sensibility, the injection of mucilage or of mild oil into it has been practised; but I have seldom found this of much service.

1773.] In gonorrhœa, as costiveness may be hurtful, both by an irritation of the system in general, and of the urethra in particular, as this is occasioned always by the voiding of hardened fæces; so costiveness is to be carefully avoided or removed; and the frequent use of large glysters of water and oil, I have found of remarkable benefit in this disease. If glysters, however, do not entirely obviate costiveness, it will be necessary to give laxitives by the mouth: which, however, should be of the mildest kind, and should do no more than keep the belly regular and a little loose, without much purging.‡

quantities, so as to produce only a slight effect on the mouth; and their use ought to be continued till every symptom disappears. Mercury may be used either internally or externally, as occasion may require; if it does not affect the bowels nor purge, the common mercurial pill of the Edinburgh Pharmacopœia is as good a formula as any we have in the shops. Its dose must be regulated by the effects it produces. In general, we begin with a four grain pill every night, and continue that quantity till the gums be slightly affected, or a coppery taste be perceived in the mouth. When either of these symptoms appear, we are certain that the mercury is received, in a sufficient quantity, into the general mass of the blood, for destroying the venereal virus, and then a pill may be given once in two or three days, so as to keep up the same slight affection of the mouth, but without increasing it. If the pill purges, we then are to have recourse to the strong mercurial ointment, half a drachm of which must be rubbed into the ham's night and morning, till the mouth be affected in the manner above described. The patient ought to wear flannel drawers during the whole time of the continuing the rubbing, which ought to be regulated by the degree of affection perceived in the mouth. The use either of the pill or of friction must be continued eight or ten days after every symptom of the disease has disappeared.

* Lintseed tea, a very thin decoction of marsh-mallow root, or thin barley-water, will, in most cases, answer the intention sufficiently well. The common almond emulsion has been recommended in these cases, and when taken in large quantities is certainly very efficacious. It may be used as the patient's common drink.

† The use of nitre has been strongly recommended by many practical writers, in cases of simple gonorrhœa unaccompanied with this symptom; but it must be acknowledged, as the author justly observes, to be hurtful by its irritating quality. It is certainly a refrigerant, and as such is useful in allaying the inflammatory symptoms; but it is inadmissible in cases where the ardor urinæ is violent.

‡ A tea-spoonful of the following electuary taken occasionally will keep the belly sufficiently open.

The practice of frequent purging, which was formerly so much in use, and is not yet entirely laid aside, has always appeared to me to be generally superfluous, and often very hurtful. Even what are supposed to be cooling purgatives, such as Glauber's salt, soluble tartar, and crystals of tartar, in so far as any part of them pass by urine, they, in the same manner as we have said of nitre, may be hurtful; and so far as they produce very liquid stools, the matter of which is generally acrid, they irritate the rectum, and consequently the urethra. This last effect, however, the acrid, and in any degree drastic, purgatives, more certainly produce.

1774.] In cases of a gonorrhœa attended with violent inflammation, blood-letting may be of service; and in the case of persons of a robust and vigorous habit, in whom the disease is commonly the most violent, blood-letting may be very properly employed. As general bleedings, however, when there is no phlogistic diathesis in the system, have little effect in removing topical inflammation; so in gonorrhœa, when the inflammation is considerable, topical bleeding applied to the urethra by leeches, is generally more effectual in relieving the inflammation.*

1775.] When there is any phymosis attending a gonorrhœa, emollient fomentations applied to the whole penis are often of service. In such cases it is necessary, and in all others useful, to keep the penis laid up to the belly, when the patient either walks about or is sitting.†

1776.] Upon occasion of frequent priapism and chordee, it has been found useful to apply to the whole of the penis a poultice of crumb of bread moistened with a strong solution of sugar of lead. I have, however, been often disappointed in this practice, perhaps by the poultice keeping the penis too warm, and thereby exciting the very symptoms I wished to prevent. Whether lotions of the exter-

Rx. Pulv. Jalap. ʒi.

Nitri ʒii.

Elect. Lenitiv. ʒi.

Syr. simpl. q. s.

M. f. Elect.

* The good effects of leeches in these cases are confirmed by experience. They may be applied on the under side of the penis, and three or four thus applied have frequently produced amazing effects. The operation, however, is extremely painful, and is seldom submitted to a second time by a patient who has once experienced it.

† In all cases of inflammation of the urethra these emollient applications give great relief. The common white bread poultice may be used during the night time or while the patient is in bed; and warm flannels impregnated with linseed tea while he is sitting up.

nal urethra with the solution of the sugar of lead, might be useful in this case, I have not properly tried.*

1777.] With respect to the use of injections, so frequently employed in gonorrhœa, I am persuaded, that the early use of astringent injections is pernicious; not by occasioning a siphylis, as has been commonly imagined; but by increasing and giving occasion to all the consequences of the inflammation, particularly to the very troublesome symptoms of swelled testicles. When, however, the disease has continued for some time, and the inflammatory symptoms have very much abated, I am of opinion, that by injections of moderate astringency, or at least of this gradually increased, an end may be sooner put to the disease than would otherwise have happened; and that a gleet, so readily occurring, may be generally prevented.†

1778.] Besides the use of astringent injections, it has been common enough to employ those of a mercurial kind. With respect to these, although I am convinced that the infection producing gonorrhœa, and that producing chancres and siphylis, are one and the same; yet I apprehend, that in gonorrhœa mercury cannot be of use by correcting the virulence of the infection; and therefore that it is not universally necessary in this disease. I am persuaded, however, that mercury applied to the internal surface of the urethra, may be of use in promoting the more full and free discharge of virulent matter from the mucous glands of it. Upon this supposition, I have frequently employed mercurial injections; and, as I judge, with advantage; those in-

* The sugar of lead solution may perhaps be objected against on account of its stopping the discharge, and inducing a swelled testicle, which has sometimes followed its application. Wrapping the penis up in linen rags wet with cold water, frequently answers the purpose of preventing the violence of the symptoms, as well as any more complicated application. The cold wet rags ought to be renewed whenever they grow warm.

† The practice of using astringent injections is extremely common; but, as the author justly observes, their use is frequently attended with disagreeable consequences. In general they always do harm when used during the continuance of the inflammatory symptoms, or even too soon after these symptoms have disappeared. If, however, (after the inflammatory symptoms are overcome, and mercury has been used for six weeks or two months in the manner described in the note on article 1771) the running still continues, we may then have recourse to these astringent injections.—They may be made of sugar of lead and white vitriol well diluted with water, as in the following formula:

Rx. Sacch. Saturn.
Vitriol. ab. āā ʒss.
Aq. font. ʒviii.
M. et cola per chartam.

Half an ounce of this injection, slightly warmed, may be thrown up in the urethra twice a day; but if it produce any smarting, it ought to be diluted with more water.—Solutions of copper have also been used with advantage in these cases, but they are of so corrosive a nature, as frequently to do harm, if not very much diluted.—An imprudent or too frequent use of any of these injections, especially if they are too strong or not sufficiently diluted, sometimes inflames or even excoriates the urethra, and hence much mischief arises. The cautious practitioner must therefore never use them so strong as to produce much smarting.

jections often bringing on such a state of the consistence and color of the matter discharged, as we know usually to precede its spontaneous ceasing. I avoid these injections, however, in recent cases, or while much inflammation is still present ; but when that inflammation has somewhat abated, and the discharge notwithstanding still continues in a virulent form, I employ mercurial injections freely. I employ those only that contain mercury entirely in a liquid form, and avoid those which may deposit an acrid powder in the urethra. That which I have found most useful is a solution of the corrosive sublimate in water ; so much diluted as not to occasion any violent smarting, but not so much diluted as to give no smarting at all. It is scarce necessary to add, that when there is reason to suspect there are ulcerations already formed in the urethra, mercurial injections are not only proper, but the only effectual remedy that can be employed.

1779.] With regard to the cure of gonorrhœa, I have only one other remark to offer. As most of the symptoms arise from the irritation of a stimulus applied, the effects of this irritation may be often lessened by diminishing the irritability of the system ; and it is well known, that the most certain means of accomplishing this is by employing opium. For that reason, I consider the practice both of applying opium directly to the urethra,* and of exhibiting it by the mouth, to be extremely useful in most cases of gonorrhœa.

1780.] After thus offering some remarks with respect to gonorrhœa in general, I might proceed to consider particularly the various symptoms which so frequently attend it ; but it does not seem necessary for me to attempt this after the late publications of Dr. Foart Simmons, and of Dr. Schwediaur, who have treated the subject so fully, and with so much discernment and skill.†

* Opium may be very conveniently applied to the urethra by injection ; and for this purpose a diluted solution of opium in water is preferable to a spirituous or vinous solution. A grain of opium dissolved in an ounce of water, and the solution strained, may be injected twice or thrice a day ; and thirty or forty drops of laudanum may be given every night at bed-time.

† As a swelled testicle frequently attends a suppressed gonorrhœa, it may be proper to give the young practitioner some directions concerning the management of it. Sometimes without any other preceding symptom, but generally on a premature stopping of a gonorrhœa, a pain is felt in the spermatic vessels and epididymis. The pain continuing, the vessels and epididymis begin to swell, and the pain and swelling are soon communicated to the testicle. In these cases, we must confine the patient to his bed, bleed him if the inflammatory diathesis appears to be universal ; but, if not, three or four leeches may be applied to the inflamed part. A brisk purge must be given, for which purpose an ounce of Glauber's salt, with a large quantity of water, answers sufficiently well. Cold pledgets soaked in a solution of sugar of lead, described in the note on article 267, must be applied to the scrotum, and their place supplied with fresh cold ones, as often as they grow warm by lying on the part. A warm poultice of bread and milk, must be also applied to the glands penis or to the whole penis. The patient must be kept on a very spare diet, using for his drink cold water with a scruple of nitre in each pint of it. This regimen generally allays the violence of the symptoms within twenty four hours ; but, it will be necessary to continue the use of the cold pledgets and warm poultice for three or four days or

1781.] The other form of the local affection of siphylis, is that of chancre. The ordinary appearance of this I need not describe, it having been already so often done. Of the few remarks I have to offer, the first is, that I believe chancres never appear in any degree without immediately communicating to the blood more or less of the venereal poison : for I have constantly, whenever chancres had appeared, found, that unless mercury was immediately given internally, some symptoms of a general siphylis did certainly come on afterwards; and though the internal use of mercury should prevent any such appearance, it is still to be presumed that the poison had been communicated, because mercury could act upon it in no other manner than as diffused in the fluids.

1782.] It has been a question among practitioners, upon the subject of chancres. Whether they may be immediately healed up by applications made to the chancre, or if they should be left open for some time without any such application? It has been supposed, that the sudden healing up of chancres might immediately force into the blood a poison which might have been excluded by being discharged from the chancre. This, however, is a supposition that is very doubtful; and, upon the other hand, I am certain, that the longer a chancre is kept open, the more poison it perhaps generates, and certainly supplies it more copiously to the blood. And although the above-mentioned supposition were true, it will be of little consequence, if the internal use of the mercury, which I judge necessary in every case of chancre, be immediately employed. I have often seen very troublesome consequences follow from allowing chancres to remain unhealed; and the symptoms of general siphylis have always seemed to me to be more considerable and violent in proportion as chancres had been suffered to remain longer unhealed. They should always, therefore, be healed as soon as possible; and that, by the only very effectual means, the application of mercurials to

longer, and to repeat the purge. After the pain and swelling have been completely removed, the patient may sit up, but it will be prudent for him to use a suspensory bandage for the scrotum, as the weight of the testicles, by stretching the spermatic chords, will be apt to occasion the return of all the symptoms.—Sometimes the gonorrhœa, if it had preceded the swellings of the epididymis and testicles, will be again brought on; but, it likewise sometimes happens that, on discussing the tumor in the scrotum, the glands of the groin begin to be painful and to swell. In these cases we must apply cold pledgets to these glands as well as to the scrotum; and rub, at the same time, some strong mercurial ointment on the inside of the thighs, in the course of the lymphatics going to these glands; and, if the penis be not inflamed, half a drachm or a scruple of mercurial ointment ought to be rubbed on the base of the glands penis in the inside of the prepuce.

Such is the general method of treating cases of this kind, and a prudent continuance of it seldom fails of success.

the chancre itself. Those that are recent, and have not yet formed any considerable ulcer, may often be healed by the common mercurial ointment; but the most powerful means of healing them has appeared to me, to be the application of red precipitate in a dry powder.*

1783.] When, in consequence of chancres, or of the other circumstances above mentioned, by which it may happen the venereal poison has been communicated to the blood, it produces many different symptoms in different parts of the body, not necessary to be enumerated and described here, that having been already done by many authors with great accuracy.

1784.] Whenever any of those symptoms do in any degree appear, or as soon as it is known that the circumstances which give occasion to the communication of the venereal poison have taken place, I hold the internal use of mercury to be immediately necessary; and I am well persuaded, the mercury employed without delay, and in sufficient quantity, will pretty certainly prevent the symptoms which would otherwise have soon appeared, or will remove those that may have already discovered themselves. In both cases, it will secure the person from any future consequences of siphylis from that infection.

1785.] This advice for the early and full use of mercury, I take to be the most important that can be given with respect to the venereal disease: and although I must admit that the virulence of the poison may be greater in one case than in another, and even that one constitution may be more favorable than another to the violence of the disease; yet I am thoroughly convinced, that most of the instances which have occurred of the violence and obstinacy of siphylis have been owing very entirely to the neglect of the early application of mercury.†

1786.] Whatever other remedies‡ of siphylis may be known, or may hereafter be found out, I cannot pretend

* Although chancres may be very speedily healed by red precipitate alone, yet it will be necessary sometimes to use an ointment made of the red precipitate and twice or thrice its weight of fresh hog's lard: the precipitate will by this means be more constantly kept on the part. The practitioner, however, must be cautious lest he use too great a quantity of precipitate, which, by its corrosive quality, sometimes increases the ulcer it was meant to heal.—During the use of this application, it will be necessary also to use mercury either internally or externally, in the manner described in the note on article 1771.—The application of the lapis infernalis to chancres, is recommended to us on the authority of some eminent practitioners. It is however a dangerous application, and frequently produces ulcers that are extremely difficult to heal.

† In a word, mercury is a certain specific for siphylis, and a sure antidote against the venereal poison. If it be properly used, it seldom fails of producing a cure; and this cure will always be the more speedy, in proportion as mercury has been used in the earlier stage of the disease.

‡ We have no occasion to seek for other remedies than mercury: and the practitioner who risks his patient's health, and his own reputation, on the uncertain effects of other remedies surely deserves reprehension.

to determine ; but I am well persuaded, that in most cases mercury properly employed will prove a very certain and effectual remedy. With respect to others that have been proposed, I shall offer this remark only, that I have found the decoction of the mezereon contribute to the healing of ulcers which seemed to have resisted the power of mercury.

1787.] With regard to the many and various preparations of mercury, I do not think it necessary to give any enumeration of them here, as they are commonly very well known and have been lately well enumerated by Dr. Schwediaur. The choice of them seems to be for the most part a matter of indifference; as I believe cures have been and still may be effected by many different preparations, if properly administered. The proper administration* seems to consist, *first*, In the choosing those preparations which are the least ready to run off by stool ; and therefore the applications externally by unction are in many cases the most convenient. *2dly*, In employing the unction, or in giving a preparation of mercury internally, in such quantity as may show its sensible effects in the mouth. And, *3dly*, without carrying these effects to a greater length, In the continuing the employment of mercury for several weeks, or till the symptoms of the disease shall have for some time entirely disappeared. I say nothing of the regimen proper and necessary for patients during the employment of mercury, because I presume it to be very well known.

1788.] Among the other preparations of mercury, I believe the corrosive sublimate has often been employed with advantage: but I believe also, that it requires being continued for a longer time than is necessary in the employment of other preparations in the manner above proposed ; and I suspect it has often failed in making a cure, because employed while persons were at the same time exposed to the free air.

1789.] Upon these points, and others relative to the administration of mercury, and the cure of this disease, I might offer some particular remarks: but I believe they are generally understood ; and it is enough for me to say here, that if practitioners will attend, and patients will submit, to the general rules given above, they will seldom fail of obtaining a certain and speedy cure of the disease.

* See the notes on article 1771.

CHAPTER III.

O F S C U R V Y.

1790.] **T**HIS disease appears so frequently, and the effects of it are so often fatal in fleets and armies, that it has very properly engaged the particular attention of physicians. It is indeed surprising that it had no sooner attracted the especial notice both of statesmen and physicians, so as to have produced those measures and regulations that might prevent the havock which it so often occasions. Within these last fifty years, however, it has been so much attended to and studied, that we might suppose every circumstance relating to it so fully and exactly ascertained, as to render all further labor upon the subject superfluous. This perhaps may be true ; but it appears to me, that there are still several circumstances regarding the disease not agreed upon among physicians, as well as different opinions formed, some of which may have had a bad effect upon the practice ; and this seems to me to be so much the case, that I hope I shall be excused in endeavoring here to state the facts as they appear to me from the best authorities, and to offer remarks upon opinions which may influence the practice in the prevention and cure of this disease.

1791.] With respect to the phenomena of the disease, they have now been so fully observed, and so accurately described, that there is no longer any doubt in discerning the disease when it is present, or in distinguishing it from almost every other ailment. In particular it seems now to be fully determined, that there is one disease only, intitled to the appellation of Scurvy ; that it is the same upon the land as upon the sea ; that it is the same in all climates and seasons, as depending every where upon nearly the same causes ; and that it is not at all diversified, either in its phenomena or its causes, as had been imagined some time ago.

1792.] The phenomena of scurvy, therefore, are not to be described here, as it has been so fully and accurately done elsewhere ; and I shall only endeavor to ascertain those facts with respect to the prevention and cure of the disease which seem not yet to be exactly agreed upon. And first, with respect to the antecedents that may be considered as the remote causes of the disease.

1793.] The most remarkable circumstances amongst the antecedents of this disease is, that it has most commonly happened to men living very much on salted meats ; and whether it ever arise in any other circumstances, is extremely doubtful. These meats are often in a putrescent state ; and to the circumstance of the long continued use of animal food in a putrescent and somewhat indigestible state, the disease has been especially attributed. Whether the circumstances of the meat's being salted, has any effect in producing the disease, otherwise than by being rendered more indigestible, is a question that remains still in dispute.

1794.] It seems to me, that the salt concurs in producing the effect ; for there is hardly any instance of the disease appearing unless where salt meats had been employed, and scarcely an example where the long continued use of these did not produce it ; besides all which, there are some instances where, by avoiding salt meats, or by diminishing the proportion of them in diet, while other circumstances remained much the same, the disease was prevented from appearing. Further, if it may be admitted as an argument upon this subject, I shall hereafter endeavor to show, that the large use of salt has a tendency to aggravate and increase the proximate cause of scurvy.

1795.] It must, however, be allowed, that the principal circumstance in causing scurvy, is the living very much and very long upon animal food, especially when in a putrescent state ; and the clear proof of this is, that a quantity of fresh vegetable food will always certainly prevent the disease.

1796.] While it has been held, that, in those circumstances in which scurvy is produced, the animal food employed was especially hurtful by its being of difficult digestion, this opinion has been attempted to be confirmed, by observing, that the rest of the food employed in the same circumstances was also of difficult digestion. This is supposed to be especially the case of unfermented farinacea which so commonly makes a part of the sea-diet. But I apprehend this opinion to be very ill-founded ; for the unfermented farinacea, which are in a great proportion the food of infants, of women, and of the greater part of mankind, can hardly be supposed to be food of difficult digestion. and with respect to the production of scurvy, there are facts which show, that unfermented farinacea, employed in large proportion, have had a considerable effect in preventing the disease.

1797.] It has been imagined, that a certain impregnation of the air upon the sea had an effect in producing scurvy. But it is altogether improbable : for the only impregnations which could be suspected, are those of inflammable or mephitic air ; and it is now well known, that these impregnations are much less in the air upon the sea than in that upon the land ; besides, there are otherwise many proofs of the salubrity of the sea-air. If therefore, sea-air have any effect in producing scurvy, it must be by its sensible qualities of cold or moisture.

1798.] That cold has an effect in favoring the production of scurvy, is manifest from hence, that the disease is more frequent and more considerable in cold than in warm climates and seasons ; and that even warm clothing has a considerable effect in preventing it.

1799.] Moisture may in general have an effect in favoring the production of scurvy, where that of the atmosphere in which men are placed is very considerable : but the ordinary moisture of the sea-air is far from being such. Probably it is never considerable, except in the case of unusual rains ; and even then it is perhaps by the application of moisture to the bodies of men in damp clothing only that it has any share in the production of scurvy. At the same time, I believe, there is no instance of either cold or moisture producing scurvy, without the concurrence of the faulty sea diet.

1800.] Under those circumstances which produce scurvy, it commonly seems to occur most readily in the persons who are the least exercised ; and it is therefore probable, that confinement and want of exercise may have a great share in producing the disease.

1801.] It appears that weakness, in whatever manner occasioned, is favorable to the production of scurvy. It is therefore probable, that unusual labor and fatigue may often have some share in bringing it on : and upon the same account, it is probable, that sadness and despondency may induce a weakness of the circulation ; and thereby, as has been remarked, be favorable to the production of scurvy.

1802.] It has also been observed, that persons negligent in keeping their skin clean by washing and change of clothing, are more liable than others to be affected with scurvy.

1803.] Several of these causes, now mentioned, concurring together, seem to produce scurvy ; but there is no proper evidence that any one of them alone will produce it, or

that all the other uniting together will do it, without the particular concurrence of the sea diet. Along with this, however, several of the other circumstances mentioned, have a great effect in producing it sooner, and in a more considerable degree, than should otherwise have happened from the diet alone.

1804.] From this view of the remote causes, it will readily appear, that the prevention of the disease may in some measure depend upon the avoiding of those circumstances, which we have enumerated as contributing to bring on the disease sooner than it would otherwise come on. At the same time, the only effectual means will be, by avoiding the diet of salted meats; at least by lessening the proportion of these, and using meat preserved otherwise than by salt; by using in diet any kind of esculent vegetable matter that can be obtained; and especially by using vegetable matters the most disposed to acescency, such as malt; and by drinking a large quantity of pure water.

1805.] The cure of scurvy seems now to be very well ascertained; and when the necessary means can be obtained, the disease is commonly removed very quickly. The chief means is a food of fresh and succulent vegetables, and those almost of any kind that are at all esculent. Those most immediately effectual are the acid fruits, and, as being of the same nature, all sort of fermented liquor.

1806.] The plants named *alkalescent*, such as those of the garlic tribe and of the *tetradynamixæ*,* are also particularly useful in the cure of this disease; for, notwithstanding their appellation, they in the first part of their fermentation undergo an acescency, and seem to contain a great deal of acescent matter. At the same time, they have generally in their composition an acrid matter that readily passes by urine, probably by perspiration; and by promoting both excretions, are useful in the disease. It is probable, that some plants of the coniferous tribe, such as the spruce fir, and others possessed of a diuretic power, may likewise be of some use.

1807.] It is sufficiently probable, that milk of every kind, and particularly its productions whey and butter-milk, may prove a cure of this disease.

* The plants of this class ought to be used in large quantities, and raw. The more active species are Horse-radish, Mustard, Water-cress, Garden-cress, Scurvy-grass: the milder species are, Radishes, Turnips, Cabbages, Cauliflowers, Brocoli, &c.

To the above list, may be added some other antiscorbutics of different classes; as Malt, Spinach, Beet, Carrots, Celery, Endive, Lettuce, Asparagus, the young shoots of Hops, Purslain, with several others.—All these fresh vegetables must be eaten in large quantities; they ought indeed to constitute the patient's chief food, and his drink may be a fresh infusion of Malt.

1808.] It has been common in this disease to employ the fossil acids; but there is reason to doubt if they be of any service, and it is certain they are not effectual remedies. They can hardly be thrown in such quantity as to be useful antiseptics; and as they do not seem to enter into the composition of the animal fluids, and probably pass off unchanged by the excretions, so they can do little in changing the state of the fluids.

1809.] The great debility which constantly attends scurvy, has naturally led physicians to employ tonic and strengthening medicines, particularly the Peruvian bark; but the efficacy of it seems to me very doubtful. It is surprising how soon the use of a vegetable diet restores the strength of scorbutic persons; which seems to show that the preceding debility had depended upon the state of the fluids; and consequently, till the sound state of these can be restored, no tonic remedy can have much effect: but as the Peruvian bark has little power in changing the state of the fluids, so it can have little effect in scurvy.

1810.] I shall conclude my observations upon the medicines employed in scurvy, with remarking, that the use of mercury is always manifestly hurtful.

1811.] After having observed that both the prevention and cure of this disease are now very well known, it may seem unnecessary to enter into much discussion concerning its proximate cause: but as such discussions can hardly be avoided, and as false opinions may in some measure corrupt the practice, I shall venture to suggest here what appears to me most probable upon the subject.

1812.] Notwithstanding what has been asserted by some eminent persons, I trust to the concurring testimony of the most part of the authors upon the subject, that in scurvy the fluids suffer a considerable change.

From these authors we learn, that in the blood drawn from the veins of persons laboring under the scurvy, the crassamentum is different both in color and consistence from what it is in healthy persons; and that at the same time the serum is commonly changed both in color and taste. The excretions also, in scorbutic persons, show a change in the state of the fluids. The breath is fetid: the urine is always high colored, and more acrid than usual; and if that acrid exsudation from the feet, which Dr. Hulme takes notice of, happens especially in scorbutic persons, it will be a remarkable proof to the same purpose.

But however this may be, there is evidence enough that in scurvy the natural state of the fluids is considerably changed. Further, I apprehend it may be confidently presumed from this, that the disease is brought on by a particular nourishment introduced into the body, and is as certainly cured by the taking in of a different diet. In the latter case, the diet used has no other evident operation, than that of giving a particular state and condition of the fluids.

1813.] Presuming therefore, that the disease depends upon a particular condition of the fluids of the body, the next subject of inquiry is, What that condition may be?

With this view I must observe, that the animal economy has a singular power of changing acescent aliments, in such a manner, as to render them much more disposed to putrefaction; and although, in a living state, they hardly ever proceed to an actually putrid state; yet in man, whose aliment is of a mixed kind, it is pretty certain, that if he were to live entirely upon animal food, without a frequent supply of vegetable aliment, his fluids would advance further towards putrefaction than is consistent with health.—This advance towards putrefaction seems to consist in the production and evolution of a saline matter which did not appear in the vegetable aliment, and could not be produced or evolved in it, but by carrying on its fermentation to a putrefactive state. That this saline state is constantly in some measure produced and evolved by the animal process, appears from this, that certain excretions of saline matter are constantly made from the human body, and are therefore presumed necessary to its health.

From all this, it may be readily understood, how the continual use of animal food, especially when already in a putrescent state, without a mixture of vegetable, may have the effect of carrying the animal process too far, and particularly of producing and evolving a larger proportion of saline matter. That such a preternatural quantity of saline matter does exist in the blood of scorbutic persons, appears from the state of the fluids above-mentioned. It will be a confirmation of all this to observe, that every interruption of perspiration, that is, the retention of saline matter, contributes to the production of scurvy; and this interruption is especially owing to the application of cold, or to whatever else weakens the force of the circulation, such as the neglect or want of exercise, fatigue, or despondency of the

mind. It deserves indeed to be remarked here, that one of the first effects of the scurvy once induced, is very soon to occasion a great debility of the system, which occasions of course a more rapid progress of the disease. How the state of the fluids may induce such a debility is not well understood ; but that it does depend upon such a state of the fluids, is rendered sufficiently presumable from what has been said above with regard to both the causes and the cure of scurvy.

1814.] It is possible that this debility may have a great share in producing several of the phenomena of scurvy ; but a preternaturally saline, and consequently dissolved, state of the blood, will account for them with more probability ; and I do not think it necessary to persons who are at all accustomed to reason upon the animal economy, to explain this matter more fully. I have only to add, that if my opinion in supposing the proximate cause of scurvy to be a preternaturally saline state of the blood, be at all founded, it will be sufficiently obvious, that the throwing into the body along with the aliment an unusual quantity of salt, may have a great share in producing the disease. Even supposing such salt to suffer no change in the animal body, the effect of it may be considerable ; and this will be rendered still more probable, if it may be presumed, that all neutral salts, consisting of a fixed alkali, are changed in the animal body into an ammoniacal salt ; which I apprehend to be that especially prevailing in scurvy. If I be at all right in concluding, that meats, from being salted, contribute to the production of scurvy, it will readily appear, how dangerous it may be to admit the conclusion from another theory, that they are perfectly innocent.

1815.] Having thus endeavored to explain what relates to the cure of scurvy in general, I judge it proper to leave to other authors, what relates to the management of those symptoms which require a particular treatment.

CHAPTER IV.

OF JAUNDICE.

1816.] **I** HAVE here passed over several of the titles in my nosology, because they are diseases not

of this island. In these, therefore, I have no experience ; and without that, the compiling from other writers is always extremely fallacious. For these reasons I omit them ; and shall now only offer some remarks upon the subject of jaundice, the last in order that I can possibly introduce in my course of Lectures.

1817.] The jaundice consists in a yellow color of the skin over the whole body, and particularly of the adnata of the eyes. This yellow color may occur from different causes : but in the jaundice, hereafter to be more exactly characterised, I judge it to depend upon a quantity of bile present in the mass of blood ; and which, thrown out upon the surface, gives its own proper color to the skin and eyes.

1818.] That the disease depends upon this we know particularly and certainly from the causes by which it is produced. In order to explain these, I must observe, that bile does not exist in its proper form in the mass of blood, and cannot appear in this form till it has passed the secretory organ of the liver. The bile, therefore, cannot appear in the mass of blood, or upon the surface of the body, that is, produce jaundice from any interruption of its secretion ; and accordingly, if jaundice does appear, it must be in consequence of the bile, after it had been secreted, being again taken into the blood-vessels.

This may happen in two ways ; either by an interruption of its excretion, that is, of its passage into the duodenum, which by accumulating it in the biliary vessels, may give occasion to its passing again into the blood-vessels ; or it may pass into these, by its being absorbed from the alimentary canal, when it happens to be accumulated there in an unusual quantity. How far the latter cause can take place, or in what circumstances it does occur, I cannot clearly ascertain, and I apprehend that jaundice is seldom produced in that manner.

1819.] The former cause of stopped excretion may be understood more clearly ; and we have very certain proof of its being the ordinary, and indeed the almost universal, cause of this disease. Upon this subject it will be obvious, that the interrupted excretion of the bile must depend upon an obstruction of the *ductus communis choledochus* ; the most common cause of which is a biliary concretion formed in the gall-bladder, and from thence falling down into the ductus communis, it being at the same time of such a size as not to pass readily through that duct into the duo-

denum. This duct may likewise be obstructed by a spasmodic constriction affecting it: and such spasm may happen, either in the duct itself, which we suppose to be contractile; or in the duodenum pressing the sides of the duct close together; or, lastly, the duct may be obstructed by a tumor compressing it, and that arising either in the coats of the duct itself, or in any of the neighboring parts that are, or may come to be, contiguous to it.

1820.] When such obstruction happens, the secreted bile must be accumulated in the biliary ducts; and from thence it may either be absorbed and carried by the lymphatics into the blood-vessels, or it may regurgitate into the ducts themselves, and pass from them directly into the ascending cava. In either way, it comes to be diffused in the mass of blood; and from thence may pass by every exhalant vessel, and produce the disease in question.

1821.] I have thus shortly explained the ordinary production of jaundice: but it must be observed further, that it is at all times accompanied with certain other symptoms, such as a whiteness of the *fæces alvinæ*, which we readily account for from the absence of bile in the intestines; and generally, also, with a certain consistence of the *fæces*, the cause of which is not so easy to explain. The disease is always accompanied also with urine of a yellow color, or at least with urine that tinges a linen cloth with a yellow color. These are constantly attending symptoms; and though not always, yet there is commonly, a pain felt in the epigastrium, corresponding, as we suppose, to the seat of the ductus communis. The pain is often accompanied with vomiting; and even when the pain is not considerable, a vomiting sometimes occurs. In some cases, when the pain is considerable, the pulse becomes frequent, full, and hard, and some other symptoms of pyrexia appear.

1822.] When the jaundice is occasioned by tumors of the neighboring parts compressing the biliary duct, I believe the disease can very seldom be cured. That such is the cause of jaundice, may with some probability be supposed, when it has come on in consequence of other diseases which had subsisted long before, and more especially such as had been attended with symptoms of obstructed viscera. Even when the jaundice has subsisted long without any intermission, and without any pain in the epigastrium, an external compression is to be suspected.

1823.] In such circumstances, I consider the disease as

incurable ; and it is almost only when the disease is occasioned by biliary concretions obstructing the biliary duct, that we may commonly expect relief, and that our art may contribute to the obtaining it. Such cases may be generally known by the disease frequently disappearing and returning again ; by our finding, after the former accident, biliary concretions amongst the fæces ; and by the disease being frequently accompanied with pain of the epigastrium, and with vomitings arising from such pain.

1824.] In these cases, we know of no certain and immediate means of expediting the passage of the biliary concretions. This is generally a work of time depending upon the gradual dilatation of the biliary duct ; and it is surprising to observe from the size of the stones which sometimes pass through, what dilatation the duct will admit of. It proceeds, however, faster or slower upon different occasions ; and therefore the jaundice, after a various duration, often ceases suddenly and spontaneously. It is this which has given rise to the belief, that the jaundice has been cured by such a number and such a variety of different remedies. Many of these, however, are perfectly inert, and many others of them such as cannot be supposed to have any effect in expediting the passage of a biliary concretion. I shall here, therefore, take no notice of the numerous remedies of jaundice mentioned by the writers on the *Materia Medica*, or even of those to be found in practical authors ; but shall confine myself to the mention of those that may with probability be supposed to favor the passage of the concretion, or remove the obstacles to it which may occur.

1825.] In the treatment of this disease, it is in the first place, to be attended to, that as the distension of the biliary duct, by a hard mass that does not easily pass through it, may excite inflammation there ; so, in persons of tolerable vigor, blood-letting may be an useful precaution ; and when much pain, together with any degree of pyrexia, occurs, it becomes an absolutely necessary remedy. In some instances of jaundice accompanied with these symptoms, I have found the blood drawn covered with an inflammatory crust as thick as in cases of pneumonia.

1826.] There is no means of pushing forward a biliary concretion that is more probable than the action of vomiting ; which, by compressing the whole abdominal viscera, and particularly the full and distended gall-bladder and biliary vessels, may contribute, sometimes gently enough, to

the dilatation of the biliary duct. Accordingly vomiting has often been found useful for this purpose ; but at the same time it is possible, that the force exerted in the act of vomiting may be too violent, and therefore gentle vomits ought only to be employed. And either when, by the long continuance of the jaundice, it may be suspected that the size of the concretion then passing is large ; or more especially when pain attending the disease gives apprehension of inflammation, it may be prudent to avoid vomiting altogether.

1827.] It has been usual in the jaundice to employ purgatives ; and it is possible that the action of the intestines may excite the action of the biliary ducts, and thus favor the expulsion of the biliary concretion : but this, I think, cannot be of much effect ; and the attempting it by the frequent use of purgatives, may otherwise hurt the patient. For this reason I apprehend, that purgatives can never be proper, excepting when there is a slow and bound belly.*

1828.] As the relaxation of the skin contributes to relax the whole system, and particularly to relieve the constriction of subjacent parts ; so, when the jaundice is attended with pain, fomentations of the epigastrium may be of service.

1829.] As the solids of the living body are very flexible and yielding ; so it is probable, that biliary concretions would in many cases find the biliary duct readily admit of such dilatation as to render their passage through it easy, were it not that the distension occasions a preternatural spasmodic contraction of the parts below. Upon this account, opium is often of great benefit in jaundice ; and the benefit resulting from its use, proves sufficiently the truth of the theory upon which the using of it has been founded.

1830.] It were much to be wished, that a solvent of biliary concretions, which might be applied to them in the gall-bladder or biliary ducts, was discovered ; but none such, so far as I know, has yet been found ; and the employment of soap in this disease, I consider as a frivolous attempt. Dr. White of York has found a solvent of biliary concretions when these are out of the body ; but there is not the least probability that it could reach them while lodged within.

* The good effects of purgatives, in removing biliary concretions in the duct, are sufficiently apparent by daily experience. It is true, indeed, that all purgatives have not this effect, especially such as are of a gentle and slow operation. The drastic purges, however, whose action is both brisk, and of long continuance, have frequently been attended with good effects. Some formulæ of these brisk drastics have been described in the notes on article 1684.

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